

THE AUTOMOBILE AND MOTOR REVIEW

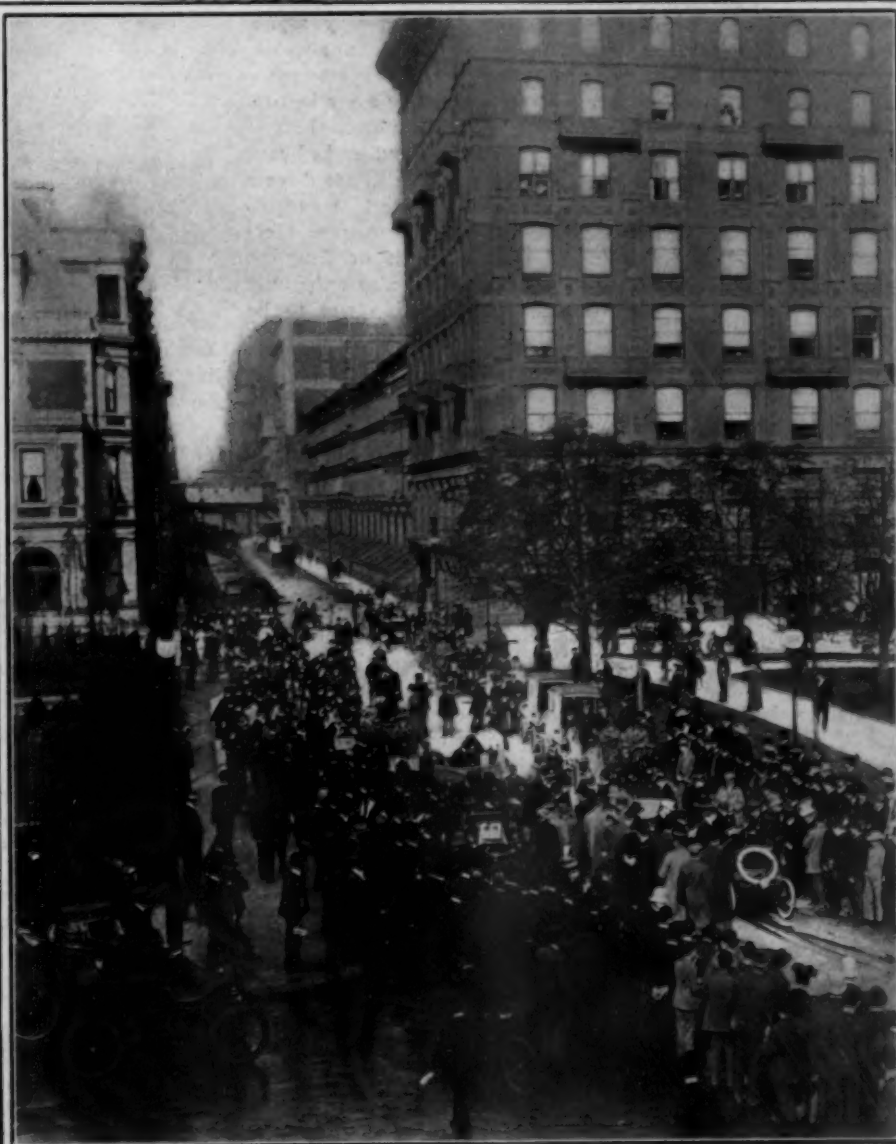
WEEKLY

NEW YORK — SATURDAY, OCTOBER 18, 1902 — CHICAGO

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NEW YORK-BOSTON RELIABILITY CONTEST



GATHERING FOR THE START AT CENTRAL PARK PLAZA

FIRST RELIABILITY RUN OF THE AUTOMOBILE CLUB OF AMERICA, NEW YORK TO BOSTON AND RETURN.



PERFECTION of arrangements, good management, fair weather and roads, and the skill and enthusiasm of scores of automobilists, drivers and observers, combined to make the first Reliability Contest in America a splendid success. Like all the previous contests which have been managed by the Automobile Club of America, this last event had a quiet, orderly, business-like beginning that gave no clue to the importance attached to it among automobilists, and among those numerous outsiders who are still looking for additional evidence of the reliability of modern road vehicles before placing their orders for one or another of the already numerous types, bidding for special favor, in the market.

There was no blast of trumpets, no excited hurrying to and fro; indeed, not half as much commotion as in any of the metropolitan department stores on a business day. Only a busy morning scene on one of the busiest thoroughfares in the civilized world. A scene animated, but by no means boisterous; yet bright with the varied colors of a hundred automobiles. No gay standards, flags or pennants wafting in the air. The motors chugged contentedly. Now and then a little modest detonation was heard as one or other of the big cars moved up in the line of procession, at a slower gait than is natural to its constitution and temperament—for automobiles have a personality. The outward signs of festivity were well suppressed—Anglo-Saxon fashion.

CONFIDENCE IS DISPLAYED.

On the other hand the occasion presented none of those indications of nervousness on the part of the drivers, manufacturers, and others commercially interested in the results, which have been noted at earlier contests. The industry is beginning to feel sure of itself. The builders are confident that their products will not be put to shame even under severe difficulties. Laurels in the test mean prestige and sales, yet a mishap, should it occur, does not spell irreparable damage. A quiet, satisfied smile hovers on the lips of most of the participants. The club functionaries do their work like old soldiers. Furtive glances and determined airs are conspicuously absent.

As usual, the vehicles were lined up in two rows on Fifty-eighth Street, reaching all the way from Fifth to Sixth Avenues, while Central Park Plaza was well filled up with visiting automobiles from which the friends of the contestants—women in the majority—watched the progress of events.

The number of people who had gathered on purpose to witness the affair, rather than by accidental presence in the traffic at the starting point, was much larger than at the New York-Rochester trials last year. When the cars were sent off, at measured intervals and on schedule time, they passed between living *espaliers* of sightseers for nearly a block. The remarks and good-speed greetings heard along the line bore witness of considerable familiarity with the earmarks of the various types of machines, perhaps, too, of a slightly sarcastic attitude toward the largest and most gorgeous touring cars, as if their luxuriousness jarred the economical sense or the democratic proclivities of some of the onlookers a trifle. Most of the vehicles, however, were of the more modest runabout or phaeton patterns, to the ownership of which all may aspire. There was less parading of special automobile paraphernalia than on previous occasions. Goggles were hidden away in coat pockets or left at home; black leather jackets were not universal, and peaked caps not *de rigueur*. One or two of the drivers even wore their ordinary derbies and, as for observers and guests, the reserve overcoats draped over the seat or dangling from the tonneau furnished about the only indication that the excursion was to be more than a twenty-mile spin on a pleasant morning. Tarpaulins, which were wisely suspended underneath many of the vehicles in the Rochester contest, in order to protect working parts against mud, were seen in only a few instances, these exceptions proving that as a rule more mechanical and less makeshift arrangements for the protection of the machinery had been adopted.

NOVELTIES IN VEHICLES.

Several vehicles attracted especial attention by their novelty; among them the 24 horse power Packard car, equipped with two double-cylinder engines of 12 horse power each, coupled together. Being entered as No. 1 it led the procession when everything was ready at 9 o'clock, starting at a moderate gait when the command was given, and with no other signs of its great power than the huge bonnet in front. The Knight-Neftel machine, painted all black and looking every one of its 3,500 pounds avoirdupois, was curiously observed, being listed on the program as an electric vehicle, while closely resembling an ordinary heavy gasoline touring car in outward appearance. It was the heaviest of all the vehicles, carrying not only an electric battery and motor, but also a gasoline engine and a dynamo wherewith to charge the battery while driving. The Locomobile Company's new gasoline touring car, operated by Andrew L. Riker, its

designer, looked spick and span from the factory. Its flaring rear splash guards were generally noticed and commented upon as a "smart" innovation in effects. Being also practical in diminishing air resistance and facilitating the cleaner's work, this feature may, likely enough, be adopted by others. The Torbenson Gear Company's little vehicle, with its original transmission gear mechanism, seemed a pigmy among its kind and looked particularly light for a long and possibly rough trip, but in reality it weighs as much as several of the cars of more massive outlines. Two delivery wagons, entered by the White Company, wore the unmistakable air of this class of conveyances, suggesting trade and utility in effective contrast with the luxury and sport surrounding them, thus bearing out that this was to be a "reliability contest" and not a race or a sportsman's event.

REVIEW OF ARRANGEMENTS.

Great Task of Organization and Official Supervision Laid on the Committees.

With the housing of seventy cars in the garage at Boston on Saturday night, October 11, ended the first half of a test of reliability under average road conditions which promises a most satisfactory proof of the quality of the American motor vehicle. The run of 250 miles can hardly be considered as a test of a powerful car specially built for touring, but a large proportion of the starters was made up of cars of from 900 to 1,400 pounds weight, and selling at a moderate price. Many of them were of the lighter types, designed for local use rather than touring, and for asphalt or macadam rather than rough country roads and steep grades. The completion of the full run of 500 miles on October 15 at New York will, no doubt, show a much smaller number, but the results thus far have been in every respect most satisfactory. The arrangements on the part of the club have been well planned and carried out. The entry list of eighty cars, of which seventy-five started, is in itself a good index of the American motor car industry as it stands to-day; the competitors have shown a most commendable spirit in pushing their cars through in spite of such difficulties and discomforts as are inseparable from such a contest. On the part of the public the event has been generally well received, local motorists and the town officials all along the road have been most hospitable and courteous, and the outside spectators have displayed a feeling of interest and friendliness. The run can hardly fail to be beneficial to the private, the club and the business side of motoring.

Though nominally the second long distance reliability run, this is really the first; the 500-mile run from New York to Buffalo last year having been made under

the present test, new and more stringent regulations.

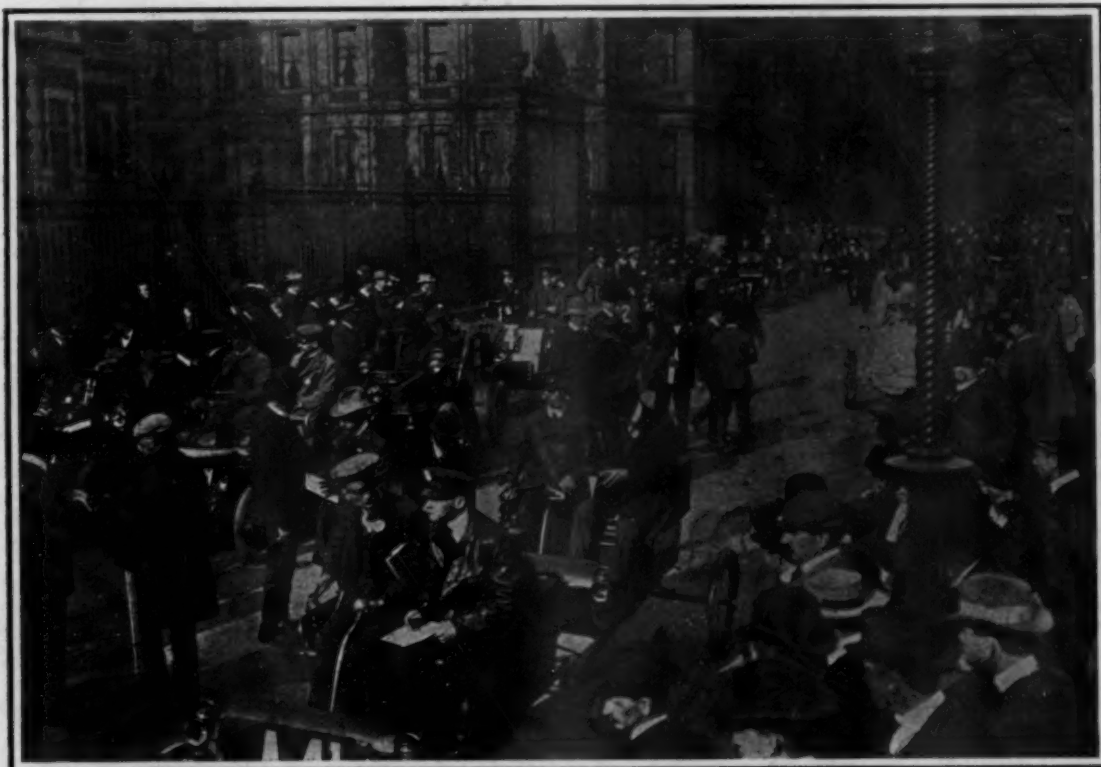
THE GENERAL ARRANGEMENT.

Of the general arrangements it may be

S. M. Butler, has been busy for some weeks with the innumerable details. New rules have been drawn up, providing for a special corps of observers, one to each



THE STARTING POINT—KENNETH SKINNER, DE DION BOUTON, TURNING INTO FIFTH AVENUE, N. Y.



VIEW OF STARTING POINT AT CLOSE QUARTERS—VANDERBILT MANSION ON THE LEFT.

conditions which gave little technical value to the results. Profiting by the experience then gained, the club laid down, for

said that the special contest committee, which includes Winthrop E. Scarritt, George F. Chamberlin, John A. Hill and

car, and for the rigid guarding of the cars at all times, all work on them being officially recorded. The various roads be-

tween New York and Boston have been inspected and the most available have been selected, mapped and marked by a double system of arrows; plain white for the outward trip and white with a red bar for the return. Arrangements have been made at each of the six stops for supplies of gasoline and water and for hotel accommodations. The observers, seventy-five in number, being for the time officials of the club, all their hotel expenses are paid by it. The preparation of the road book involved no small amount of work, and in addition there was much to be done in each town, as shown by the following letter, addressed to the various local authorities along the route of the contest:

NEW YORK, Oct. 4, 1902.

Dear Sir: The Automobile Club of America will hold, on October 9 to 15, a *Reliability Test* for automobiles from New York to Boston and return. There are seventy-five automobiles entered in the test and they will pass through your city going to and returning from Boston.

We desire to conform entirely with your local requirements and to prevent speeding through your city, and to that end we are sending you two flags (green and white) and desire to know if you will have them placed in accordance with the enclosed instructions.

Kindly acknowledge receipt of flags, and return to us after October 15 at our expense.

We are sending you a copy of the program giving route, etc.

Yours truly,

(Signed) S. M. BUTLER, Secretary.
THE AUTOMOBILE CLUB OF AMERICA,

P. S.—We would ask that you be good enough to have the flags placed as short a distance apart as is consistent, so that the distance between them will embrace only the built up portions of your city where reduced speed is necessary.

Three of the committee, Messrs. Scarritt, Chamberlin and Hill, made the trip in the latter's car, being on hand at each start and finish. Mr. Butler, the secretary, went by rail from one control to the next. The starting and timing was done by a corps of timers under the direction of M. B. Thayer, assisted by F. E. Weir. At the morning and night controls were A. S. Wilson and E. R. Stearns, and at the noon controls Messrs. Curtis, Stearns, Gage and Warren. Mr. Thayer had to return to New York on Sunday and Mr. Weir took his place, while Wm. Mason Turner, who was in charge of the timers on the Buffalo run last year, came on to act as starter on the return trip.

WEIGHING THE CARS.

The work of weighing was carried on all through Tuesday and Wednesday, Mr. Weir being in charge at the coal scales at Fifty-sixth Street and First Avenue, in New York. Each car was weighed in road trim, including lamps, tools, and any

extra tires carried. The observers were assigned by the committee, being notified one week in advance. On Wednesday evening at the club house each one was given a large envelope containing the road book, the road charts on cardboard, a button with the official number, a lead pencil, and an invitation from the Knox Automobile Co. for a dinner at Springfield. In most cases the cars afforded little room for luggage, and the observer carried little besides a rain coat. Prior to the start a special circular was distributed giving notice of changes of route at Bridgeport, Hartford and Brookfield, and calling special attention to a dangerous descent at Palmer. Notice was also given as follows of an important ruling:

"Because of the difficulty of arriving at controls at exactly a speed of fourteen (14) miles per hour, the Contest Committee has decided to allow 10 minutes leeway, either way, in arriving at controls. For illustration: If a contestant is due to arrive under the rules at exactly 12 o'clock, he may arrive 10 minutes sooner or 10 minutes later without incurring any penalty."

In the accompanying table of entries the exact condition, under the rules, at the start are set forth—See opposite page.

NEW IDEAS IN CARS.

Many Cars of Improved Design in the Contest—Details of Special Features.

Among the seventy-seven machines starting in the run, more than a dozen relatively new designs are represented, dating back, so far as public appearance goes, less than a year. Most conspicuous among these is the ponderous Packard G belonging to Harlan W. Whipple, a true leviathan, turning the scales at 3,950 pounds, and propelled by an opposed cylinder engine, said to be of 61-4 inches bore by 7 inches stroke, and rated at 24 horse power. Pneumatic tires support this massive car, whose *raison d'être* must be found in the caprice of the purchaser rather than in any apparent advantage to be gained by its enormous weight.

Even more extraordinary is the special Locomobile driven by S. T. Davis, Jr. It is best described as a self-propelled tank wagon, to whose overgrown proportions the Locomobile running gear seems ill adapted. The rear axle has a bottom truss in addition to the usual arch, and two pairs of brake drums are used, one drum on each rear wheel and one on each live shaft next to the differential.

THE BRAZIER MACHINE.

Turning to less eccentric machines, a 15 horse power car built by H. Bartol Brazier, deserves notice. It has a twin-cylinder vertical motor in front, with a hydraulic governor working very much on the principle of the Winton pneumatic governor. A pump forces a stream of water through a chamber, one wall of

which is a flexible diaphragm. The water escapes through an orifice of fixed size, and increased rapidity of flow, due to increased engine speed, forces the diaphragm outward, acting on the throttle valve. An independent hand connection to the throttle is provided. The steering wheel rim, instead of being circular, has a section cut out of it, the open part being away from the driver when steering straight. An expanding ring clutch is used.

APPERSON BROS.' TOURING CAR.

The Apperson Brothers' 16-horse power car has a horizontal opposed-cylinder motor in front, lying fore and aft on the left-hand side. A clutch connects the engine with the first gear shaft, and the second shaft, lying back of the first, carries the sliding gears, which give three forward speeds and one reverse. A sprocket chain transmits from the latter shaft to the rear axle. A pedal under the left foot releases the clutch and applies a brake on the differential, and next to it a smaller piano pedal, working against a spring, advances the spark, which is made by contact with primary current from a magneto. This pedal comes back to "slow" when the foot is taken off. A similar pedal under the right foot opens the throttle.

The Ward Leonard Electric Co. entered two new cars embodying some radical advances from the light "Knickerbocker" cars lately made by them. Notably the power, weight, and wheel base are considerably increased, and the Renault system of meshing the gears has been discarded for the usual sliding system.

COUNTERSHAFT ON REAR AXLE.

"Torbensen Gear, Incorporated," entered a light motor-front car with bevel gear transmission to a light high-speed countershaft carried directly on the rear axle and driving on the rear wheel hubs by pinions and gears.

Several cars of the new model Long Distance are entered. They have wheel steer, semi-elliptic rear springs with distance rods instead of the three-quarter springs lately used, and three forward speeds by planetary gearing.

Two new Fredonia cars of 9 horse power and medium weight, have horizontal single-cylinder motors and, apparently, two forward speeds. They steer by a side lever.

An 8 horse power French De Dion, imported by Kenneth Skinner, has the cardan rear axle construction employed in the 5 horse power motorettes, and a peculiar front spring arrangement, the rear ends of the front springs, instead of being shackled to brackets, being shackled to the front ends of downwardly curved half-springs.

The H. H. Franklin Co. has a light car with four-cylinder air-cooled motor in front and transmission by a very long chain.

COMPLETE RECORD OF THE 75 ENTRANTS WHO STARTED IN THE RELIABILITY CONTEST

Number.	Class.	Maker.	Entered By.	Driven By.	Observer.	Persons, including Driver.	Power.	Horse Power.	Weight in running condition.	Make.	Type.
1	C	Ohio Automobile Co.	Harlin W. Whipple.	Owner.	J. M. Hill.	6	6	21	3,935 ⁺	Goodrich.	Double.
2	C	Ohio Automobile Co.	Henry B. Joy.	Wm. McIlvrid.	J. G. Kingman.	6	6	21	3,585	Diamond.	Double.
3	C	Ohio Automobile Co.	Adams & McNulty Co.	Geo. L. Weiss.	R. F. Scott.	6	6	12	3,400	Diamond.	Double.
4	C	Ohio Automobile Co.	Adams & McNulty Co.	F. E. March.	E. S. Boardman.	6	6	12	2,910	Diamond.	Double.
5	C	Prescott Automobile Mfg. Co.	Maker.	H. M. Wells.	J. E. Baldwin.	8	8	4 ¹ / ₂	1,435	Prick.	Single.
6	C	Foster Automobile Mfg. Co.	Maker.	F. L. Dodson.	Henry W. Struss.	8	8	9	1,460	Diamond.	Single.
7	C	Lane Motor Vehicle Co.	Maker.	J. T. Roosa.	J. Padellet.	8	8	9	1,780	Harford.	Single.
8	C	Haynes-Apperson Co.	Maker.	E. K. Raymond.	F. W. Eaton.	8	8	9	1,250	Harford.	Single.
9	C	Haynes-Apperson Co.	Maker.	Frank Nutt.	C. M. Chittenden.	8	8	9	1,945	Goodrich.	Double.
10	C	Autocar Co.	Maker.	Elwood Haynes.	W. C. Pendleton.	8	8	10	1,610	Goodrich.	Double.
11	C	Autocar Co.	Maker.	James Evans.	W. I. Smith.	8	8	10	1,610	G & J.	Double.
12	C	Ward Leonard Electric Co.	Maker.	Walter Evans.	H. D. Meier.	8	8	10	1,475	G & J.	Double.
13	C	Ward Leonard Electric Co.	Maker.	A. C. Chase.	C. G. Chase.	8	8	10	1,475	G & J.	Double.
14	C	Apperson Bros. Automobile Co.	Maker.	P. G. Fleming.	H. M. Swetland.	8	8	13	1,675	G & J.	Double.
15	C	Apperson Bros. Automobile Co.	Maker.	Elmer E. Apperson.	Lawrence Addix.	8	8	16	2,860	Goodrich.	Double.
16	C	H. Bartol Bros.	Maker.	F. E. Pierce.	C. W. Warren.	8	8	15	2,600	Goodrich.	Double.
17	C	Torben Gear, Incorporated.	Maker.	P. E. Pierce.	Fred Ott, Jr.	8	8	15	2,600	Goodrich.	Double.
18	C	George W. Pierce Co.	Maker.	P. E. Pierce.	C. H. Gilette.	8	8	12	2,600	Goodrich.	Double.
19	C	Apperson Bros. Automobile Co.	Maker.	Owner.	A. J. Doxy.	8	8	12	1,600	Goodrich.	Double.
20	C	Apperson Bros. Automobile Co.	Maker.	Owner.	E. A. Wheaton.	8	8	16	2,400	Goodrich.	Double.
21	C	Apperson Bros. Automobile Co.	Maker.	Owner.	E. A. Wheaton.	8	8	16	1,395	Goodrich.	Double.
22	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
23	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
24	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
25	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
26	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
27	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
28	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
29	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
30	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
31	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
32	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
33	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
34	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
35	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
36	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
37	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
38	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
39	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
40	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
41	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
42	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
43	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
44	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
45	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
46	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
47	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
48	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
49	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
50	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
51	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
52	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
53	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
54	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
55	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
56	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
57	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
58	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
59	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
60	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
61	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
62	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
63	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
64	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
65	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
66	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
67	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
68	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
69	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
70	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
71	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
72	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
73	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
74	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
75	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
76	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
77	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
78	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
79	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.
80	C	White Sewing Machine Co.	Maker.	Owner.	E. A. Wheaton.	8	8	6	1,475	Goodrich.	Double.

Narrative of the Contest.

FIRST DAY'S RUN.

Start of Contest on Thursday Oct. 9 from New York for New Haven, Conn.

The start was made as in previous contests, the cars entering West Fifty-eighth Street from Sixth Avenue, and lining up along the curb in front of the Vanderbilt Mansion. The head of the line, on the southwest corner, was taken by entrant No. 1, Harlan W. Whipple's big Packard touring car, with a four-seated tonneau. When one looked at the official weight of the car, nearly 4,000 pounds, he wondered why it weighed so much, but when he looked at the four bronze hubs, each as big as a beer cask, he wondered how it weighed so little. Glittering in the morning sun, they made a shining mark, for the wit of Mr. Scarritt, who, later on, remarked that he had always heard that there was but one Hub—that for which the cars were bound—but apparently now there were five, taking into account Mr. Whipple's machine. Shortly after came Harold H. Brown's Darracq, No. 21, then the new Apperson Bros. car owned by Henry K. Browning, taking position along the north curb, while another Packard, No. 3, came up behind No. 1.

One by one at intervals other cars arrived, until about 8 o'clock, when they came in more thickly. Many outside cars came up and took their places about the Central Park Plaza, to see the start. Gradually a crowd of spectators gathered, including many ladies, and extended in long lines up each side of Fifth Avenue. In the streets surrounding the cars were busy groups of motorists, some with drivers or observers' badges, and some with cameras. Newspaper men and many who were present merely to inspect the cars and to watch the start, added to the numbers. All the filling of tanks had been done in advance, and nothing remained to be done but to start the machines.

STARTED ON TIME.

As the clock on the Plaza Bank, under the rooms of the Automobile Club of America, marked the hour of 9, the word was given to the big Packard, and she moved into Fifth Avenue and swung into the narrow lane which the police kept clear between the rows of spectators. The Darracq followed, then the Apperson and the second Packard. The others followed at half minute intervals, and then at quarter until at 9:26:45 the seventy-fifth car brought up the rear and the contest was on in earnest.

The road up Fifth Avenue was more or less blocked, many cars not entered in the run were running in company or standing by the curb, trucks, coal carts and other big commercial wagons were moving slowly, and at frequent intervals the com-

paratively narrow roadway was further constricted by piles of building contractors' brick and lumber. For some distance the water cure had been applied to the pavement freely, making the first mud of the run. Over streets and avenues familiar to many in the party the cars ran out of the city proper, and in spite of all legal limits and the presence of many policies, the 14-mile point at Bartow was crossed in about 55 minutes; the legal limit for most of this distance being but 8 miles.

BOSTON POST ROAD.

The run along the Boston Post Road was delightful; the day was clear and sunny, the wind was fresh and bracing from the northwest, suggesting fall, but not cool enough to call for gloves or overcoats.

The roads along through Larchmont, Rye, Greenwich and, in fact, for the entire distance to New Haven, were mostly of macadam and in all places they were hard and smooth. The only drawbacks were the speed limits and the dust; it would have been far easier and pleasanter to have run at a thirty-mile speed than at the twenty-mile which was supposed to represent an average of 14 per hour. The dust was plentiful, even the light cars raised it in clouds, while the big Panhards and other heavy cars fairly lifted the top off the road and threw it in all directions.

It was evident that every one along the route knew of the run and was sufficiently interested to wish to see it. Many were out in motor cars and horse-drawn vehicles, and through the towns as well as in the open country the roads were lined with men, women and children. In the towns the sidewalks were crowded and in many places the roadway as well, leaving only a narrow lane for the passage of the cars. Dogs and children together played about in the road with utter disregard to their own safety. In the villages ladies sat on the porches or stood by the gates, some with paper and pencil to note the numbers, while little groups gathered on the corners. At each school house in city and country the children were dismissed for the time. This new style of twentieth-century circus attracted almost as much interest and attention as its old-time rival, and for the week at least was indeed the "Greatest Show on Earth." The reception accorded by all classes of the public was cordial and friendly in the extreme, with very few individual exceptions. Questions were answered politely and any needed aid was willingly tendered.

SCENERY VERY PICTURESQUE.

The road from New York to New Haven passes through a picturesque and interesting country, the surface diversified by moderate hills; on the right-hand, at a

distance of one to three miles, lies Long Island Sound, visible at intervals, and several rivers, with diverging creeks, were under the various bridges. A town or city is found at every interval of three to six miles, with well-tilled farms between, and many very handsome country places and villas line the way. The roads are good, mainly of macadam, and even where dirt roads are found, they are well graded and kept in good condition. The temptation to speed the cars was too strong to be easily resisted, and the result was that there were some exciting coasts and lively road brushes.

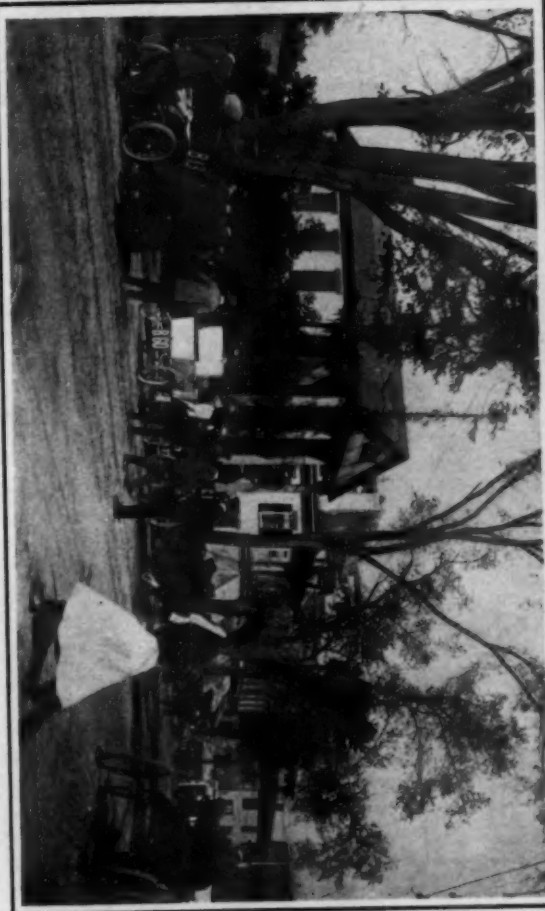
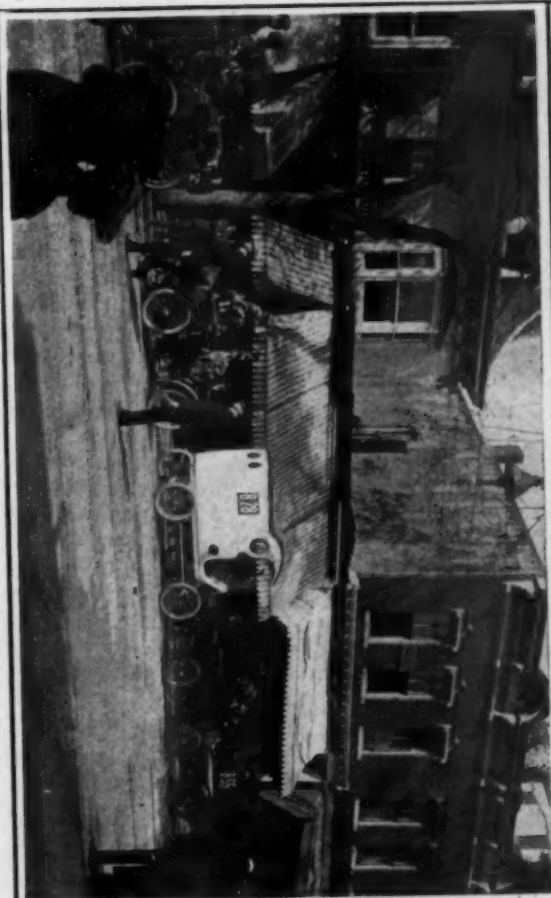
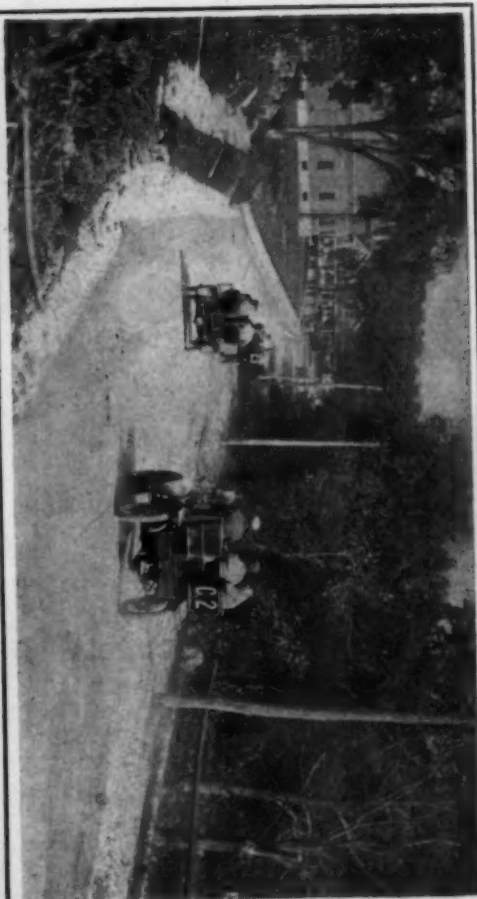
ARRIVAL AT NORWALK.

A long string of cars at last crawled slowly through the streets of Norwalk, some ahead of even the ten-minute limit. The first car in was B 39, Kenneth Skinner's De Dion, reaching the control at about 11:57, instead of his correct time of 12:12:15. He turned into a side street and made a detour to kill time. The next to arrive was Mr. Whipple's big Packard, C 1, the rear left tire exploding within a hundred yards of the control, in spite of which he finished at 11:59:30, or ten and one-half minutes ahead of time. B 39 now reappeared and was officially timed at 12:04:00, or safely within the ten minutes' grace. The next was the Oldsmobile, No. 63, due at 12:15 and timed at 12:05, just on the limit. Then another Olds, No. 64, due at 12:11:45 and timed at 12:05:15. Then came C 29, B 35, B 7, and others in close order. The majority were well ahead of the time limit.

The work of timing, taking supplies and starting was of necessity hurried, and the difficulty was increased by the crowds of spectators and horse-drawn vehicles about the control, but the arrangements were generally satisfactory and the officials worked rapidly. As each car stopped in the long line, whose head was at the red control flag, a timer recorded the time of stop in the observer's book. Then, as the car in turn drew up to the flag, the observer's book was signed by an official and the observer signed the official book, in which the time from his book was noted. Running into the yard of the Norwalk House, gasoline and water were ready at hand, and after the tanks were filled each car ran back to the street and lined up behind one already standing by the curb. Driver and observer then went into the hotel for luncheon.

EXPERIENCES OF THE FIRST PERIOD.

The first half-day's travel demonstrated very clearly that the power of all the well-known types of automobiles is far beyond the requirements of a reliability contest, so far as an average speed of 14 miles an hour is concerned, but also that the full power is sometimes needed on the hills. The only vehicle in which the source of power proved insufficient was of special, and comparatively untried, construction, being the electric carriage entered by



Approaching Norwalk, Packard 12 horse power Car in the Foreground.
White Delivery Wagon and other autos lined up in Norwalk.

H. W. Whipple's 24 horse power Packard Car leading the way into Norwalk.
Taking Turns in West Avenue, Norwalk.

VIEWS OF THE COMPETING CARS AT THE FIRST OFFICIAL STOPPING PLACE, NORWALK, CONN.—CARS TIMED TO ARRIVE ABOUT NOON ON THURSDAY OCT. 9.

Knight Neftel. Its battery was rapidly run down on the hills, and the gasoline motor carried for the purpose of replenishing the battery, while proceeding, could not quite supply the deficiency, even at slow speed. As the vehicle was by far the heaviest in the contest, weighing 3,500 pounds, its difficulties were not surprising and it was correctly surmised at Norwalk that it would not finish the day's run. Its performance was looked upon purely as an experiment, with a new style of automobile, which is still in its infancy. That all the other vehicles were operated far below their capacity was made particularly conspicuous to all by a number of well-known automobilists who accompanied the contestants, but were not bound by the contest rules. They "drove circles" around the regular participants, flitting to and fro as adjutants before a battalion front, passing and repassing everybody at will. Among these were Col. J. J. Astor, in a Mercedes car, who returned to New York after reaching Norwalk; several of the club officials, such as President A. R. Shattuck, with J. Dunbar Wright and Frederick Graves as passengers in his Panhard machine; W. E. Scarritt, with J. A. Hill in the latter's Autocar, with F. M. Hilliard, of the Waldorf-Astoria Hotel, and Richard Newton as guests. Others who accompanied the contestants were Frank G. Webb, of the Long Island Club; E. E. Britton, H. Ward Leonard, I. W. England, H. Armour Smith, H. S. Woodworth, of Rochester, and W. J. Stewart, of the New Jersey club.

Considerable mystery surrounds the long delay of the Darracq machine operated by F. A. La Roche, which in previous contests has been strictly on time, but failed to reach the noon control at Norwalk. A broken inlet valve caused apparently by the malicious introduction of a piece of metal in the valve box, compelled a seven hour stop for renewal of the broken part.

AFTERNOON OF OCTOBER 9.

The first in line for the afternoon run was the little Olds, No. 63, followed by Kenneth Skinner in No. 39, the Olds, No. 64, and Leonard D. Fisk's big Panhard, No. 66. Then came 80, 73, 62, 4 and 8. The first car was started at 1:40:15, and the last of the regular line at 2:04:30. After this at longer intervals came several which had been delayed on the road, No. 56, Long Distance, at 2:32, No. 34, Mr. Davis' steamer, at 2:51:00; and No. 50, the Neftel combination gasoline-electric, at 4:26:00. The time allowed for the 34.5 miles to New Haven was 2 hours 28 minutes, so that the first car was due at 4:08:15.

DIRT ROADS REACHED.

The roads through Westport were still of macadam, and though this soon led on to plain earth and an up grade to Southport, the surface was smooth, hard and even. At Bridgeport the procession was

greeted as at the previous towns, the streets being crowded and the cars being hailed by the spectators in a friendly way. Though the country was a little rougher and less closely settled, many pretty villages were passed, and many handsome country places. At no part of the route was the speed limit observed, except within the last mile or so. Where the law called for eight miles the cars ran at an average of over ten; where ten was the rule they ran from twelve to fourteen; and where fifteen was allowed in the open country, some of the cars were speeded up to thirty and the average speed was probably well over twenty.

WEATHER CONTINUED FINE.

The weather continued fine, with a bright sun and moderate westerly breeze and the latter part of the day's run was delightful. Nearing Savin Rock the road opened on a view of Long Island Sound and New Haven Harbor, while it was lined with handsome summer cottages and villas. Entering New Haven, the streets were thronged with people, the children being just out of school, and lined up by hundreds along the curb, in the front rank. It was an amusing sight to look from the car at the long rows of small shoes and black stockings in perfectly regular lines, each a block long. It was not so amusing when the owners of some of these shoes stepped into the street and gathered up heaps of dirt and any convenient missiles and hurled them at the helpless occupants of the slowly moving cars. Discourtesy of this kind, which was quite the exception in all other places on the outward route, was rather the rule with the children of New Haven.

ARRIVAL AT NEW HAVEN.

The entry into New Haven, as into every other control, was anything but spirited and lively, with from ten minutes to half an hour in which to cover the final mile, the cars crowded along in a way which fully justified the small boys' advice to "Go git a hoss." After all their brave spurts on the road where no one could see them, the drivers were perforce reduced to a pace which showed the motor car at its worst, giving each the appearance of being seriously crippled.

It may be noted here that to all who undertook it seriously, as many did, the work of an observer is very interesting. It does not consist in riding at ease, with no responsibilities, such as rest on the driver, and free to strike picturesque attitudes in the towns and to stare at all the pretty women. If the observer, without forgetting his position, as the impartial representative of the club, is inclined to help the driver and to work for the success of the car, there is much that he can do.

WORK OF OBSERVERS.

In order to make a perfect score it is necessary not only that a car should go

through without a penalized stop, but that it should arrive at every control exactly on time. This last is not an easy matter, especially where the observer is unfamiliar with the road, but it is by no means impossible, if no accident happens. The observer has the time to read the book of instructions and follow the map, and also to pick up the arrows and prominent points on the road. In order to make a proper landfall at the control it is necessary to keep a constant watch on the time and distance, where the road is good, keeping the car down about to the schedule. When a dozen miles or so from the control the time must be gauged carefully. As the outlying villages are in most cases at distances of but three to five miles from each other, it is easy to figure out a close arrival.

On starting from the outgoing control the official time is recorded on the margin of the road map; to this is added the minimum time allowed, as printed in red on each map, and all unpenalized stops are also added, the sum giving the time at which the car is due. By using up all excess time between the second and fifth mile out, there is left a period of fifteen minutes for the last two miles. Any traffic delay takes care of itself, so the only mark is from a penalized stop within the last quarter of an hour. This sort of land navigation is quite interesting and not a few of the observers attended to it carefully and conscientiously, but in nine cases out of ten the work was thrown away. In spite of the continual cautions and remonstrances of his observer the driver would persist in speeding on the first inviting stretch of road outside a control, slowing down at times and then indulging in a race with some other car. At a dozen miles out the car would be half an hour or more ahead of its schedule, the driver would slow down for a short distance and lose a little time and then make it up by another unnecessary spur. When it became evident that the control was not far away the driver would begin to realize that he was twenty minutes or so ahead of his time, and he would slow down to a speed of two or three miles; one of a long string of crawling cars. A sudden turn of a corner and the green flag was met, showing a quarter of a mile or so to the red control flag, short of the latter the line stopped and closed up and some of the officials passed along, recording the time of each stop. A few cars were so carefully run by observer and driver together that they hit the controls within the minute in each case, but the majority were barely saved by the ten-minute grace.

POOR JUDGEMENT OF DRIVERS.

The entry into New Haven was just such a crawl as described, and yet many were ahead of time. The first one timed was No. 39, at 4:04:30, followed within the next four minutes by 66, 63, 64, 18 and 42.

The running time of these, without adding possible unpenalized stops, ranged between 2:24:15 and 2:25:15, or about four minutes under the limit, so that they were saved by the ten-minute grace. After filling tanks the cars were run into the yard of the abandoned New Haven Wheel Works and housed under the open sheds.

NUMBER OF ARRIVALS.

Out of seventy-five machines which left New York, seventy-two reported at the New Haven control within schedule time. The missing ones were the same that failed before reaching Norwalk, including the "Buffalo" gasoline vehicle entered by Mechalsey Bros. Several, however, came in with punctured tires. Altogether fifteen tire punctures were reported for the first day's run, but those which happened to double tube tires were repaired on the road. The business sagacity which was displayed by a New York firm came in for admiring comment in New Haven. Instead of participating in the contest it had sent out two luxurious automobiles unofficially, one a new French type, reproduced in this country, and the other an imported Renault, and the clever drivers managed to display their qualities to much better advantage than would have been possible if they had contested for the regular honors.

Shortly after leaving New Haven a Knox car was disabled by a broken crank shaft, and a brush between three or four vehicles resulted in an accident to a Haynes-Apperson machine, which might have proved serious. Its driver, M. Michener, of Kokomo, Ind., in approaching a narrow piece of road found his right of way disputed by one of the other vehicles which tried to pass him. To avoid a collision, Mr. Michener steered his machine into deep sand on the side of the roadbed and it was brought to a sudden stop while going at considerable speed. Both the driver and the observer, M. C. Pendleton, were lurched out headlong, but suffered no serious injury, while the momentum of the machine snapped the spring hangers and disabled the car for further progress. Both the Knox and the Haynes-Apperson vehicles were reported before the next morning and joined the contest again between Springfield and Boston.

SECOND DAY'S RUN.

Friday, Oct. 10, New Haven to Springfield Mass. with Noon Stop at Hartford.

The good weather still held on Friday morning, the sun shining in a clear sky, but the morning air had a decided edge to it, which grew still keener after the cars were well under way, the wind being northwest, and the road trending about north northeast. Each driver entered the garage with his observer, the steam cars were run out by hand, and the gasoline under their own power, and when in the street the work of adjustment and

repair was begun. As soon as a car was ready for the road it ran to the end of the street and took its place astern of the cars already in line.

The first in place by the right curb was No. 4, Packard, with No. 35, Locomobile, next; on the opposite corner was another Locomobile, No. 36, followed by Kenneth Skinner in No. 39. The Fisk Panhard, No. 66; the Olds, Nos. 64 and 63; Mr. Whipple's Packard and the Brazier car, No. 18, were all on hand early and were off within the first minute after 9 o'clock.

LEAVING NEW HAVEN.

The exit from New Haven was far less interesting than the entry, through a poorer part of the town. The crowds were in the streets to see the show, but were less oppressively demonstrative than on the previous evening. With some stretches of city block pavement followed by macadam outside the city, the road was good out to North Haven, 8.6 miles. The dust was very thick, however, and the big Packard and some other heavy cars, starting the day with a lively spurt on the outskirts of the city, left a dense cloud for the following cars.

The first bad roads of the route were met just outside North Haven, country roads of dirt, narrow and rough; a single beaten track, with the rest of the roadway overgrown with weeds and grass. As it happened, with dry weather, the road was in good running condition, and the cars could make speed over it without trouble, but one could not help thinking of what it would be after a little rain. The country along here was the least interesting on the entire route, rolling land, more or less rocky and barren, with only farm houses, and these widely scattered. The Quinnipiac River was visible, with the hills beyond, but the whole scene compared poorly with the road between New York and New Haven, and that beyond Springfield.

GOOD ROADS TO WALLINGFORD.

After some two or three miles better roads were encountered, and from Wallingford on good macadam was the rule. The road turned frequently, with many varying grades, but no bad hills, and the country became more fertile and at the same time more picturesque, with the smaller towns at short intervals. The usual public reception committee was on hand at Meriden, and the ride from there to Hartford was very pleasant. Some dirt roads were met, but in good condition. The entrance to Hartford was through long avenues of handsome houses, the way shaded by trees, the most attractive piece of city street on the route. The cars crawled slowly in, the two Olds, Nos. 64 and 63, in the lead; the former just on the ten minute limit and the latter a couple of minutes inside it. The Whipple car followed, then the other Packard, No. 4; the "Fiat" car, No. 49, and the Foster, No.

80. All of these made the run in 2:51 to 2:53, the official limit being 3:01; so that they were saved by the ten-minute extension.

HARTFORD AND AFTER.

After the usual ceremonies of timing, filling tanks, taking position and luncheon, all in a rush and hurry, with streets blocked by a miscellaneous crowd, the start was made at 1:31:00. The two Olds cars again headed the line, followed by No. 20, Pierce motorette; No. 47, Knox; No. 49, F. I. A. T., and No. 2 Packard. The start was very badly blocked and some cars were stopped almost as soon as they made the first start. Once out of the heart of the city, good roads were found, continuing all the way to Springfield. There was plenty of dust, but apart from this the afternoon run was most pleasant, the road followed the hills of the Connecticut Valley, with the river below on the right. On the left hand the hill ascended, with grassy terraces and pretty villas or comfortable farm houses; on the slope from road to river on the right were descending terraces with more houses. The roads were well shaded and the houses were surrounded by fine trees. Rising and falling, with many curves, each disclosing some pleasing view of a country place close at hand, or a wooded hill at a distance, the road was an ideal one for pleasure touring. The air was still fresh with the first touch of fall, but the bright sun made extra wraps unnecessary.

APPROACH TO SPRINGFIELD.

When near to Springfield the road turned down the hill to a bridge over the river and then through a poorer part of the town and into the principal streets to Marble Street, where the control was established.

The first cars were timed at 3:12:00. the Olds, Nos. 63 and 64, followed by No. 39, De Dion, and No. 20, Pierce, within the next minute. As these had left Hartford about 1:31, and the minimum time was 1:53, they had about used up the ten minutes leeway.

The garage was the Springfield Riding Academy, where a gasoline wagon was waiting, with the chief of the Fire Department and several assistants, and two lengths of hose by which two cars could fill up at the same time. After filling the cars were run into the garage for the night.

The entrants, observers and others associated with the run were entertained at dinner by the Knox Automobile Company, local manufacturers.

ARRIVALS AT SPRINGFIELD.

Although only sixty-nine vehicles arrived at Springfield before the night control closed, seventy-two started the next morning. Three of the six cars which had dropped out since leaving New York, had succeeded in effecting repairs and joined the Springfield forces during the night. The missing ones were an Autocar, a Lo-

comobile and a Fredonia gasoline vehicle, the latter a new car in the market. The little De Dion Motorette driven by Dr. J. T. Hovestadt had suffered a broken front axle at New Britain in the morning, turned up at Springfield within the time limit. A number of tire punctures were reported from between the two cities. A Ward-Leonard machine, driven by P. G. Fleming, was ditched by the collapse of a tire, it was said, but escaped with a bent front axle. A. L. Riker lost 15 minutes in replacing an intake valve in his brand new machine, thereby making a demonstration of facility in valve repairs which was considered well worth the loss of time.

THIRD DAY'S RUN.

Springfield to Boston on Saturday, October 11, with Noon Stop at Worcester, Mass.

From such reports as were current among those who profess to know, the roads between Springfield and Worces-

some of the observers were tardy, to the manifest annoyance of their drivers, who were not allowed to take the cars from the garage without them. As this rule was enforced in most cases, but not in all, there were some well-grounded complaints from those who were compelled to wait for late observers.

The first away, at 9 o'clock, was No. 1, followed by No. 3, and No. 54, Dr. Hovestadt's little De Dion, which was in place at the head of the line after a hard day and a late arrival on Friday. Then came Nos. 63 and 64, Olds; No. 29, the Davis steam car, and No. 39, De Dion.

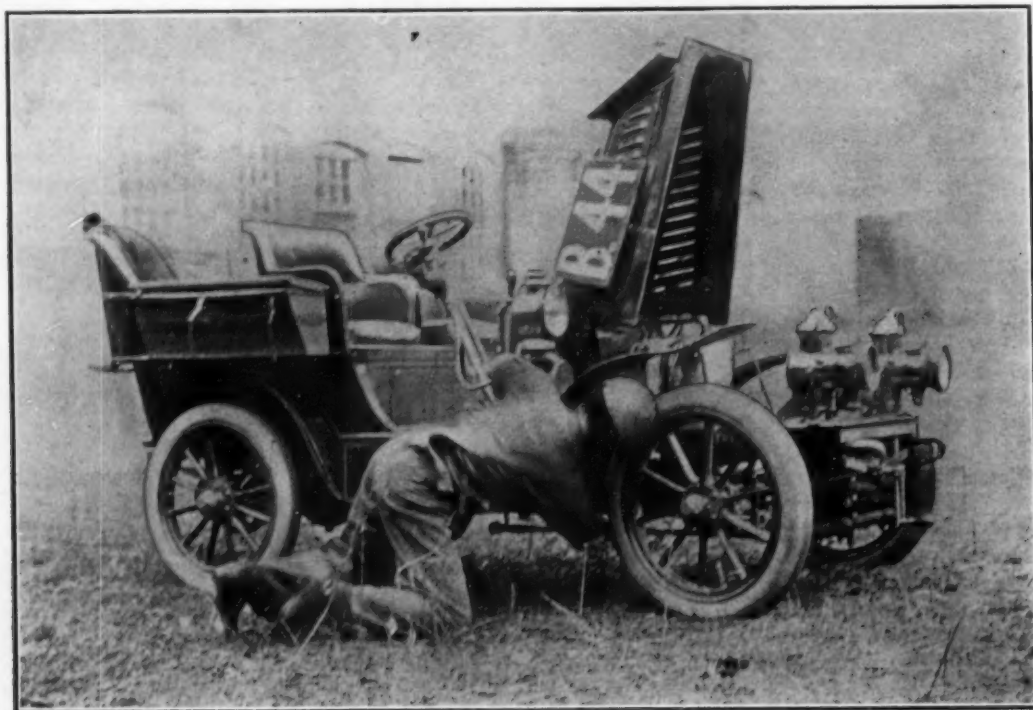
ROADS OUT OF SPRINGFIELD.

Once out of the city the roads were good and as usual there was some quick traveling, regardless of legal limits and possible disqualification. Within the first five miles, however, began what proved to be a long, hard climb over a succession of hills to the summit at Worcester. The roads were not bad, even on the dirt,

promised plenty of trouble in wet weather. A narrow track, where two cars could pass with difficulty, wound up and down the hills, with woods or stone walls on either side, the roadbed being fine, sandy loam that cut into bits.

FRIENDLY RIVALRY OF CARS.

The light steam cars passed easily enough, but the heavy gasoline cars puffed and wheezed on their low gears. The light gasoline cars, notably the Olds and the Rambler, had been well handled all the way from New York, their drivers working very hard to make a good showing alongside of the large and powerful touring cars. Considering their general build and the class of work for which they are designed, these cars had done remarkably well. Now they had reached the limit, and their drivers were hard pressed to make time. They rolled down every hill and then climbed slowly up the next rise, sometimes pushed by the operator. The test over wet roads on a



ADJUSTING F. A. LEROCHE'S DARRACQ IN GARAGE AT NEW HAVEN.

ter were but poor, and as this was the longest run of all, 52 miles to the noon control, and 45 more to the finish, all hands looked for a hard day's work. The outlook was not improved by "a southerly wind and a cloudy sky," which proclaimed that some might find trouble without hunting for it. The sun tried to break through the clouds, but without much success.

ADJUSTMENTS AND REPAIRS.

After two days' running there was more to be done in the way of adjustments and small repairs, and Marble Street presented a busy scene up to 9 o'clock. After the festivities of the previous evening

while there were many stretches of the State road, all good macadam. By North Wilbraham and Palmer the country became rougher, with steep hills on every hand and some mountains in the distance. The scenery was very picturesque, the road winding in every direction with a constantly changing view of hills whose trees were just turning, and rivers wandering through narrow valleys. The farmhouses were comparatively small, the land being rocky and broken and mainly fit for grazing. The villages were all picturesque in location and detail, mostly on side hills. Though passable, the roads for long stretches were unimproved, and

long run was an unfair one for this class of car, and one to which they would never be subjected in ordinary use, but they stood it to all appearances very creditably. They at least came through in good time, though whether they suffered permanently from the test cannot be said at the time of writing.

WEATHER CONDITIONS FAVORABLE.

There was no wind throughout the morning, and though the sky was cloudy and the landscape lost some of its brilliancy, the temperature was much higher than on Friday, and the riding was very pleasant. There was also less dust than on the first two days. In spite of the hills

and poor roads the average time of the entire fleet of cars was well up to the limit until at West Brookfield a long, hard grade, with a rough dirt surface was met. This was the first of these hills, the others being at Spencer and Leicester, which stopped a number of the heavy cars and some of the light gasoline cars. Several of the big cars stuck on the Brookfield Hill, while the smaller gasoline cars were pushed up very slowly, together making a block which threatened, as on Nelson Hill, to stop all following cars. By dint of slow and careful running those cars which were well able to climb the hill managed to dodge the stalled ones.

STOPPAGES FOR CAUSE.

The stoppages, whether for trivial or important causes, were now much more numerous, and it was a regular thing to see a car by the roadside with pump going on tires or motor head off. The De Dion, No. 54, was again in trouble, the steering gear giving way where it had been repaired on the previous day.

The approach to Worcester and the entry through the city were very pretty, and many were still so far ahead of their schedule as to have ample time to admire the view. Many cars ran out from Worcester to meet the contestants.

ARRIVAL AT WORCESTER.

The first one in was No. 39, at 12:24:00; then the two Olds at 12:32:00; then No. 22, Foster; No. 47, Knox, and No. 20, Pierce. There was a rush for water and gasoline at the Robinson automobile station and then for lunch at the State Mutual restaurant, which was at some distance from the control.

On the way from Springfield to Worcester, Foster's hill, close to Warren, and a long 12 per cent. grade, near Spencer, proved a setback, and worse yet was encountered near Lake Quinsigamond, between Worcester and Boston. At these



MAKING ADJUSTMENTS AT THE GARAGE IN NEW HAVEN.

places several gasoline cars were stalled or compelled to drift backward on the

lunge, and the question was raised whether these tactics constituted a penalized stop at the moment when the direction of the car was reversed. In several instances both driver and observer dismounted to lighten the cars and push, but so long as no outside help was enlisted, this was declared permissible. The number of automobiles which arrived safely at Worcester was seventy, counting in those which had not been officially started on account of failure to reach all the controls in time. One of these, Mr. La-Roche's Darracq machine, broke a piston on the hill near Spencer.

WORCESTER TO BOSTON.

The road from Worcester to Boston, 45 miles, proved much better than the morning run, the prevailing grades were downward and there were many good stretches of macadam. The country became less hilly by degrees, but still interesting, with pretty suburban towns at lessening intervals until Boston itself was reached. At a point just north of Northboro an arrow was missing, said to have been removed by a boy, and most of the cars turned to the left instead of the right. As the arrows had been scarce in this section it was not easy to detect a mistake, and one car after another ran on toward Marlboro, instead of Southboro. The first car in arrived just as a fire and a trolley car collision were under way, blocking the main street. The crowd of men, boys and police pointed out a way by a sharp turn to the right into a narrow alley between two buildings, then to the left through a lane or court and out by a right turn through another alley to the main road again. The various quick turns were bewildering, but there was no time to think. Once in the road there was nothing for it but to follow the beaten track and trust to luck at the turns. Nearly all the cars made the right road again beyond Southboro, after quite a long detour. Some missed the road anew after



ON THE ROAD NEAR NORWALK.

brakes while the motor picked up increased speed of rotation for a forward



WAITING FOR THE START AT NORWALK, CONN.

passing Marlboro and were further delayed. The entrance to Framingham, with the trees arching over the road, was very attractive, and Wellesley, Newton Center and Chestnut Hill, all with good roads, were worth a slower ride and closer inspection. As usual the leaders came into Boston well ahead of time. Near Framingham, at 3:30 o'clock, a drop or so of rain was felt, and just outside Boston it began to sprinkle steadily, increasing to a moderate rain which lasted through the night.

The small Torbenson Gear vehicle which previously had a clean score, skidded badly on wet asphaltum just out of Worcester and crashed into a building, breaking the radiator and a wheel, though the occupants managed to keep their seats. It did not reach Boston till Sunday morning. The total number of arrivals at Boston who were able to start on the return trip Monday morning reached 71, but it will be necessary to await the official figures to determine how many of them were within the rules.

OFFICIAL TIMES TABULATED.

The following table gives the official times of the start and finish of every car at each control on the outward run. It is impossible to give any complete and reliable list of the stops, penalized and unpenalized, as such information can only be obtained from the official road books, seventy-five in number, and after being collated will require careful tabulation and computation. To publish such a hearsay record as can be had by a car-to-car canvass of drivers and observers would be unfair to many who have made creditable runs in spite of some unpenalized stops.

PEN SKETCHES AT CONTROLS.

Moving Scenes by Day and Night at the Official Stopping Places—Arrivals and Departures.

Scenes full of life and interest were those at the noon and night controls. The time was recorded by two sets of officials, one set taking the arrivals and departures at the noon controls at Norwalk, Hartford and Worcester, and the other set at the night controls in New Haven, Springfield and Boston. Starter Morris H. Thayer, however, sent the machines away from every control, making the trip by train, with a number of newspaper men, representing various metropolitan dailies and the automobile publications.

Starter Thayer, with a tall and commanding figure, topped with a natty white leather automobile cap, was conspicuous everywhere, and his quick and unerring work in sending away the cars has had much to do with making the Reliability Contest the great success that it has been. At Boston he was unexpectedly called to New York and returned there Saturday night, J. E. Weir assuming his duties on the return run.

The machines, contrary to expectations and the usual order, arrived at Norwalk considerably strung out. Kenneth Skinner, in the De Dion, B 39, hove in sight first around the turn by the little white church at the head of Main Street. He was more than five minutes early, however, and, about 500 feet from the control, turned around and retraced his way to the head of the street, allowing the Packard, C 1, and the Oldsmobiles, A 64 and A 63, to enter ahead of him. The Packard exploded the left rear tire at the same point where Skinner turned around, but continued into the control without stopping.

The remaining machines straggled in for a few minutes and then came thick and fast, giving the timers a quarter of an hour's quick work. The contestants and operators made a concerted assault on the dining room of the Norwalk Hotel and at the end of the allotted hour and a half the machines were lined up on both sides of a side street. Starter Thayer and his timers assigned the starting times to the first score of cars and soon they were departing at quarter-minute intervals, with many doubles leaving on the same time. Twenty minutes of this right and left hand work sufficed to get all of the seventy-odd cars away.

AT NEW HAVEN.

The Yale College boys were out in all their football regalia to watch the unaccustomed sight when the machines at the head of the long and elastic string entered New Haven. The night control, at the abandoned New Haven Wheel Works, was only a block from the college buildings. The first car in was the Elmore, B 38, at 4:08:45, followed by B 49, C. H. Tangeman's "Fiat" car. Others followed in quick succession.

When the arriving times had been taken, the machines moved on up the street to the Standard Oil Co.'s tank wagon and the drivers filled up the tanks and then drove further on to a fire plug, at which the water tanks were replenished. There was some delay in getting into the weed-grown enclosure of the wheel works, but the task was finally accomplished and at 10:10 P. M. the garage closed for the night.

When the cars had been disposed of for the night, the contestants, observers and those passengers who had ridden in the rear seats of the tonneaus, sought the several hotels to which the coupons issued by the Automobile Club of America assigned them, and brushed the thick dust from their clothing, washed off the accumulations of grit, and after supper recounted the incidents of the day's run.

Two hours, from 7 to 9, were allowed in the morning for cleaning, oiling and overhauling the machines. The start was without especial incident, except that F. A. La Roche's Darracq, B 44, was long delayed in starting, and after considerable difficulty, the trouble was located in one

of the valves, in which a bullet was found, it was explained.

GREAT INTEREST IN HARTFORD.

The noon control in Hartford, in front of the Allyn House, appeared to have been unfortunately picked. It was on one of the main thoroughfares of the city, which is much used for traffic, so that soon after the machines began to arrive the street became much congested. There was an immense turnout of spectators—the largest of any place on the run, and larger, local residents asserted, than when President Roosevelt was in the city recently. As if the teaming and pedestrians in the street were not of themselves sufficient to interfere with the movement of the machines, most of the bicyclists in the city seemed to be out with their wheels to see the fun. Hartford may well be credited with taking unusual interest in automobilizing.

President Shattuck, in his big covered automobile, and the official car carrying Messrs. Butler, Scarritt and Hill, rolled into the city considerably in advance of the first contestants. As a rule these left the controls before the last of the contestants.

At Hartford, as everywhere else along the way, the White carriages and White delivery wagons, all enameled white, were most conspicuous. They started in consecutive order, stayed together throughout each half-day's run, and arrived in the same order, on time almost to the second. The little Oldsmobiles—A 63 and A 64—too, were notable for keeping together, and especially for their early arrival at each control, invariably leading the van, both on the out and return trip. H. Bartol Brazier's big blue tonneau, C 18, was a noticeable feature at all stopping places and was usually well in the van. Other big machines that were notable objects of interest to all spectators were the new Apperson Bros. big blue tonneau, C 17, which made its debut in this run and which attracted a crowd everywhere; its brother machine, C 23; the Packards, C 1, 2, 4 and 43; the "Fiat," T. Italian car, B 49; Leonard D. Fisk's big Panhard, C 66; the new Riker gasoline tonneau; the Haynes-Apperson surrey; the new International tonneau, C 62; Percy Owen's Winton touring car, and others of the same type.

THE NIGHT IN SPRINGFIELD.

The Springfield night control was well located, the old Springfield Riding Academy, which was used as the garage, being situated nearly a mile from the center of town, and at the end of a short residence street. The building itself is a large wooden shed. There were few spectators, no confusion, and only slight delay in refilling the gasoline and water tanks and running the machines under shelter.

In the evening came the pleasant relaxation of the banquet and smoker at Cooley's Hotel.

OFFICIAL TIMES OF ARRIVAL AND DEPARTURE AT ALL CONTROLS ON THE OUTWARD RUN FROM NEW YORK TO BOSTON

Number and Make.	New York Depart.	Norwalk Arrive.	Norwalk Depart.	New Haven Arrive.	New Haven Depart.	Hartford Arrive.	Hartford Depart.	Springfield Arrive.	Spring- field Depart.	Worcester Arrive.	Worcester Depart.	Boston Arrive.
1 Packard.....	9:00:00	12:00:00	1:36:00	4:19:45	9:00:45	11:54:00	1:48:15	3:31:45	9:00:00	12:35:15	2:26:45	5:35:00
2 Packard.....	9:05:00	12:30:00	1:41:30	4:13:15	9:01:45	12:00:00	1:32:00	3:15:00	9:05:45	12:52:15	2:27:00	5:41:00
3 Packard.....	9:00:30	12:12:15	1:41:00	4:12:45	9:04:30	11:58:00	1:36:45	3:19:45	9:00:00	12:52:30	2:28:15	5:41:15
4 Packard.....	9:04:15	12:15:00	1:41:00	4:11:00	9:00:00	12:34:15	1:31:30	3:16:45	9:08:45	12:50:15	2:27:30	5:37:00
5 Prescott.....	9:07:00	12:31:15	1:54:15	4:16:45	9:09:15	12:03:00	1:41:00	3:22:15	9:07:45	12:49:15	2:24:15	5:37:00
6 Foster.....	9:08:30	12:25:30	1:51:15	4:20:45	9:02:45	12:11:45	1:38:45	3:23:00	9:05:00	12:54:15	2:13:15	5:46:00
7 Lane.....	9:06:15	12:10:15	1:51:00	4:19:45	9:03:30	11:56:00	1:42:30	3:25:15	9:13:00	12:51:00	2:22:00	5:38:00
8 Lane.....	9:08:00	12:21:00	1:44:15	4:19:00	9:07:30	12:06:00	1:39:45	3:31:30	9:14:45	1:01:30	2:22:30	5:41:15
9 Pope-Robinson.....	did not start	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10 Haynes-Apperson.....	9:24:30	12:33:00	1:59:15	4:27:00	9:06:30	12:44:00	2:00:45	3:54:45	9:02:00	12:38:15	2:17:00	5:25:30
11 Haynes-Apperson.....	9:26:00	12:29:00	1:46:15	4:17:30	9:02:15	12:02:00	1:45:00	3:36:15	9:04:45	12:45:30	2:14:00	5:25:30
12 Haynes-Apperson.....	9:26:00	12:37:00	2:00:00	4:27:15	9:03:00	.....	.....	5:31:00	9:00:15	12:38:00	2:23:00	5:31:15
13 Autocar.....	9:19:00	12:36:15	1:57:00	4:26:00	9:16:45	12:14:00	2:06:15	3:50:30	9:10:00	12:53:15	2:23:15	5:36:30
14 Autocar.....	9:17:30	12:43:15	1:56:45	4:27:15	9:15:00	.....	.....	.....	.....	.....	.....	.....
15 Knickerbocker.....	9:23:00	12:28:30	2:00:00	4:24:00	9:17:45	12:15:00	1:44:45	3:29:00	9:01:15	12:38:30	2:16:00	5:29:45
16 Knickerbocker.....	9:22:30	12:38:00	1:55:15	4:18:00	9:04:15	12:29:00	1:45:15	3:31:15	9:00:45	12:45:45	2:13:30	5:14:15
17 Apperson Bros.....	9:23:45	12:28:00	2:00:30	4:23:45	9:16:30	12:11:15	2:03:00	3:44:30	9:06:15	12:47:15	2:17:15	6:03:00
18 Brazier.....	9:20:00	12:28:45	1:41:15	4:06:30	9:01:00	11:57:45	2:51:30	3:36:30	9:08:00	12:48:00	2:31:45	5:41:15
19 Torbensen.....	9:06:00	12:16:45	1:46:30	4:25:30	9:07:00	12:55:00	2:00:15	4:03:00	9:10:30	1:47:00	2:33:00	.....
20 Pierce.....	9:12:00	12:15:00	1:53:15	4:18:30	9:02:15	11:57:30	1:31:15	3:13:00	9:01:45	12:35:00	2:16:45	5:23:00
21 Darracq.....	9:00:00	12:31:00	1:37:30	4:23:45	9:19:30	12:12:15	1:53:15	3:36:30	9:16:00	1:13:00	2:32:00	5:38:00
22 Foster.....	did not start	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23 Apperson.....	9:23:45	12:30:15	2:01:30	4:25:15	9:15:30	12:12:00	1:34:15	3:37:15	9:03:45	1:46:15	2:23:30	.....
24 White.....	9:11:30	12:19:15	1:47:30	4:17:00	9:10:30	12:08:15	1:41:45	3:28:00	9:07:00	1:49:30	2:18:45	5:29:15
25 White.....	9:15:00	12:20:00	1:48:30	4:17:00	9:12:00	12:08:45	1:42:15	3:28:00	9:06:70	1:49:30	2:21:00	5:31:30
26 White.....	9:13:30	12:15:45	1:50:00	4:17:00	9:12:15	12:08:30	1:42:00	3:26:45	9:06:45	1:46:00	2:18:30	5:30:15
27 White Delivery.....	9:13:45	12:21:15	1:50:00	4:17:15	9:09:45	12:08:00	1:41:30	3:26:30	9:08:15	1:45:30	2:18:00	5:30:00
28 White Delivery.....	9:14:00	12:22:45	1:50:30	4:17:15	9:08:15	12:07:15	1:35:30	3:26:30	9:07:15	1:45:00	2:18:00	5:31:00
29 Riker.....	9:00:15	12:07:00	1:40:30	4:09:45	9:00:00	12:17:30	1:49:30	3:20:15	9:02:00	1:44:15	2:19:30	5:31:45
30 Stevens-Duryea.....	9:26:30	12:43:00	1:39:30	4:25:30	9:09:30	12:11:00	1:37:45	3:24:30	9:15:30	1:02:15	2:26:15	5:41:45
31 Stevens-Duryea.....	9:26:45	12:32:00	1:59:45	4:25:45	9:07:45	11:59:15	1:34:45	3:18:15	9:02:30	1:23:30	2:14:30	5:24:45
32 Rambler.....	9:18:30	12:32:00	1:52:15	4:14:45	9:10:15	12:03:45	1:34:45	3:35:30	9:07:30	1:25:00	2:23:45	5:41:30
33 Grout.....	9:22:00	12:34:00	1:54:00	4:19:00	9:02:30	12:21:00	1:51:45	3:38:00	9:06:00	1:02:00	2:30:45	5:43:30
34 Locomobile Racer.....	9:00:15	1:25:00	2:51:00	5:20:30	9:19:15	11:55:15	1:31:00	3:18:30	9:03:00	1:24:00	2:20:00	5:30:45
35 Locomobile.....	9:01:45	12:10:00	1:47:30	4:15:45	9:00:00	12:07:00	1:47:30	3:18:00	9:03:00	1:24:00	2:20:00	5:30:45
36 Locomobile.....	9:01:00	12:27:00	2:02:45	4:47:00	9:12:30	1:09:00	2:17:00	4:31:00	9:12:45	1:00:15	2:29:00	5:38:15
37 Elmore.....	9:10:00	12:13:00	1:48:00	4:08:45	9:19:45	12:17:15	1:50:30	3:32:30	9:14:00	1:25:00	2:32:45	5:38:15
38 Elmore.....	9:10:30	12:12:00	1:46:00	4:04:30	9:00:15	11:57:00	1:32:45	3:13:00	9:01:00	1:23:40	2:12:30	5:14:15
39 DeDion-Bouton.....	9:02:15	12:04:00	1:40:00	4:10:30	9:06:30	11:58:30	1:42:45	3:26:45	9:04:00	1:24:15	2:25:30	5:39:00
40 Autocar.....	9:16:00	12:20:30	1:48:15	4:26:00	9:19:00	12:13:30	1:40:30	3:27:30	9:01:45	1:24:45	2:17:45	5:23:15
41 Oldsmobile.....	9:03:45	11:49:00	1:49:00	4:08:15	9:16:00	12:22:00	1:50:00	3:33:00	9:11:00	1:25:00	2:22:15	5:29:30
42 Searchmont.....	9:22:00	12:28:15	1:44:00	4:26:15	9:05:00	11:58:15	1:30:00	3:11:45	9:02:45	1:23:15	2:13:15	5:21:45
43 Packard.....	9:15:45	1:09:00	2:04:30	4:26:15	9:05:00	11:58:15	1:30:00	4:29:45	9:04:15	1:23:30	2:31:31	5:43:00
44 Darracq.....	9:19:00	12:29:15	1:45:00	4:14:00	9:14:15	12:15:15	1:45:45	3:32:15	9:14:30	1:25:50	2:31:31	5:43:00
45 Franklin.....	9:08:30	12:18:30	1:43:00	4:11:45	9:01:00	11:53:00	1:31:30	3:14:45	9:03:00	1:24:40	2:15:00	5:20:15
46 Knoxmobile.....	9:11:00	12:16:30	1:50:45	4:16:15	9:01:45	11:53:00	1:31:30	3:14:45	9:00:45	1:24:30	2:15:00	5:20:00
47 Knoxmobile.....	9:11:30	12:19:45	1:46:45	4:15:15	9:02:00	12:04:00	1:39:00	3:39:45	9:01:15	1:24:45	2:14:45	5:25:15
48 F. I. A. T.....	9:04:45	12:12:00	1:46:00	4:09:00	9:00:45	11:54:30	1:31:45	3:15:00	9:01:30	1:23:00	2:25:00	5:27:15
49 Neftel Electric.....	9:21:30	12:35:00	2:00:00	4:49:15	9:06:15	11:57:15	1:36:30	3:22:00	9:05:30	1:23:45	2:13:00	5:14:15
50 Stearns Steamer.....	9:17:30	12:25:44	2:21:00	4:42:00	9:10:45	12:10:00	1:43:00	3:28:30	9:01:30	1:23:00	2:14:00	5:26:15
51 Winton.....	9:06:30	12:15:15	1:52:30	4:22:00	9:10:45	12:10:00	1:43:00	3:28:30	9:01:30	1:23:00	2:14:00	5:26:15
52 Columbia.....	did not start	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53 DeDion-Bouton.....	9:02:30	12:44:00	2:24:30	4:47:45	9:09:00	2:05:00	.....	4:14:30	9:00:00	.....	.....	.....
54 Long Distance.....	9:16:30	12:22:15	1:52:00	4:13:30	9:02:45	12:04:30	1:43:15	3:34:45	9:05:15	1:24:30	2:24:00	5:34:45
55 Long Distance.....	9:15:30	1:26:00	2:32:00	4:57:45	9:13:00	12:33:00	1:52:15	3:38:45	9:04:30	1:24:15	2:35:00	5:33:30
56 Pierce.....	9:12:30	12:20:15	1:58:00	4:25:15	9:08:00	12:06:30	1:49:00	3:45:30	9:09:15	1:24:45	2:35:45	5:42:45
57 Rambler.....	9:18:00	12:19:30	1:53:00	4:15:45	9:12:45	12:07:30	1:45:30	3:31:15	9:11:30	1:06:00	2:27:45	5:33:15
58 Winton.....	9:08:00	12:16:00	1:41:45	4:11:00	9:08:30	12:03:45	1:48:30	3:33:30	9:13:30	1:06:00	2:25:15	5:41:30
59 Grout.....	9:23:00	12:36:00	2:00:15	4:29:00	9:03:00	12:11:30	1:48:45	3:41:45	9:11:45	1:06:30	2:25:15	5:41:45
60 Grout.....	9:23:30	12:35:00	2:02:30	4:28:30	9:02:00	12:06:45	1:35:30	3:22:30	9:09:30	1:47:45	2:21:30	5:27:15
61 Toledo Gas.....	9:04:00	12:15:30	1:40:30	4:28:00	9:10:00	12:03:30	1:37:30	3:12:00	9:00:00	1:23:15	2:15:45	5:15:45
62 Oldsmobile.....	9:05:00	12:05:00	1:40:15	4:05:15	9:00:30	11:53:15	1:31:00	3:12:00	9:00:00	1:23:00	2:15:30	5:15:15
63 Oldsmobile.....	9:01:45	12:05:15	1:40:15	4:05:15	9:00:30	11:51:15	1:46:15	3:32:30	9:16:00	1:04:00	2:28:45	5:35:00
64 Automotor.....	9:26:45	1:05:00	2:29:30	5:04:00	9:17:15	12:15:30	1:32:15	3:17:15	9:01:00	1:24:00	2:24:30	5:37:15
65 Panhard.....	9:05:30	12:12:15	1:40:00	4:04:45	9:00:15	11:58:00	1:32:15	3:32:15	9:13:45	1:25:00	2:28:00	5:37:00
66 Searchmont.....	9:14:30	12:45:00	1:55:45	4:17:15	9:18:00	12:13:45	1:48:00	3:38:45	9:12:00	1:25:00	2:29:15	5:33:00
67 Fredonia.....	9:21:00	12:29:30	1:59:30	4:27:45	9:14:30	12:17:00	1:49:45	6:39:15	9:15:45	1:25:15	2:29:45	5:56:00
68 Fredonia.....	9:20:30	1:03:00	2:28:70	7:22:00	9:19:45	.....	.....	3:17:45	9:11:45	1:00:00	2:16:30	5:57:15
69 Foster.....	9:07:30	12:25:15	1:44:30	4:14:45	9:05:30	12:13:00	1:34:30	3:17:45	9:11:45	1:00:00	2:16:30	5:57:15
70 De Dion-Bouton.....	9:03:00	2:02:00	2:02:00	4:34:00	9:11:30	12:06:15	1:43:45	3:27:45	9:00:30	12:34:15	2:17:30	5:19:00
71 Geo. Richard.....	did not start	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72 Foster.....	9:00:15	12:11:00	1:40:45	4:19:15	9:03:00	2:01:30	2:01:30	5:02:30	9:15:00	.....	4:30:00	11:10:00
73 Thomas.....	9:25:00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
74 Rambler.....	9:19:45	12:30:00	1:58:00	4:28:30	9:11:15	12:12:30	1:46:30	3:35:45	9:12:30	12:53:45	2:32:15	5:45:00
75 Searchmont.....	9:15:00	11:24:00	1:55:00	4:20:00	9:19:45	12:18:00	1:44:15	3:32:00	9:16:00	12:58:00	2:16:00	5:28:30
76 Rambler.....	9:12:30	12:23:30	1:52:45	4:18:45	9:11:00	12:13:15	1:47:00	3:54:30	9:09:45	12:49:00	2:20:30	5:26:00
77 Darracq.....	did not start	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
78 Oldsmobile.....	9:04:30	12:12:45	1:43:00	4:13:15	9:01:45	12:02:30	1:37:00	3:27:30	9:09:15	12:52		

The morning scene—the start for Worcester—was almost a repetition of that at New Haven, except that instead of the fine weather that had prevailed on Thursday and Friday, the day opened with an overcast sky that grew steadily gloomier until night. The first machines were started off exactly on time at 9 o'clock, as they had been in New York and New Haven.

ARRIVAL IN BOSTON.

A light drizzle and darkness met the contestants upon their arrival in Boston from 5 o'clock onward, and caused considerable doubt regarding the course and direction, although colored lights were displayed and a red lamp waved in the street at the Harvard Station No. 2, by Starter Thayer, indicated the finish of the outward run. The rain prevented the collection of much of a crowd, but the darkness and rain rendered writing the official times in the observers' books and in the official time books a difficult and not especially agreeable task. And, while it lent some variety to the putting away of the machines in the immense old railroad station now used as a garage, it also retarded the work.

Skinner, in B 39, the Knickerbocker, B 16, and the Oldsmobiles, 63 and 64, led the procession in and were followed at irregular intervals by sixty others. Several contestants did not arrive until after the garage closed at 10:10 P. M., and one or two did not get in until Sunday.

BANQUET AT SPRINGFIELD.

Participants in the Reliability Contest are Entertained by the Knox Automobile Company.

A party of more than 300 of the Automobile club officials, contestants, observers, passengers and local motor enthusiasts, was handsomely entertained in Springfield, Friday evening, by the Knox Automobile Company, of the city, which had three machines entered in the contest. The entertainment took the form of a banquet in Cooley's Hotel. The hotel was used as headquarters for the visiting automobilists, the time keepers putting up there, and during the early hours of the evening the office and corridors were thronged with a crowd of dusty enthusiasts, discussing the day's run, the relative merits of their machines and the prospects for the remainder of the run.

The banquet was set at 8 o'clock and while it was in preparation, the guests were entertained by the Philharmonic orchestra, of Springfield. A lively program of up-to-date selections was given and the travelers forgot their hunger in the jollity of the occasion.

SPEECHES WERE MADE.

An elaborate menu had been prepared and after the coffee and cigars were served, speech-making began. President A. E. Smith, of the Knox Company, who

with President A. R. Shattuck, of the Automobile club; Mayor Ralph W. Ellis, of Springfield; Winthrop E. Scarritt and John A. Hill, of the reliability contest committee, and other New York and local automobile enthusiasts, occupied the head of the table, opened the affair with an introductory speech of welcome. He said:

"Gentlemen of the Automobile Club of America, members of the 500-mile reliability contest and invited guests: We consider ourselves especially favored that the Automobile Club of America, in arranging the 500-mile reliability contest, selected Springfield as a stopping place tonight. It gives the automobile enthusiasts of this vicinity an opportunity to meet the officers and participants in this very interesting run between New York and Boston and return. We feel greatly indebted to you all for your presence this evening.

"Your reliability has certainly been demonstrated—and that of your vehicles.

arrangements. He admitted that he had had apprehensions of the coming of so many automobiles, but was now of the opinion that there was no cause for fear and he confided the fact that the city marshal had been out of town all the afternoon. Continuing, he said, "I am glad of the increasing number of automobiles in the country, for every automobile owner becomes an advocate of good roads. (Applause.) The horseman doesn't care so much for this, but the automobile owner appreciates them and he becomes aware of the fact that we must look to the States and not to the country towns for road improvements." Mayor Ellis praised the work of the State highway commission, but he declared that as the present tendency of the times is for the life and strength of the country towns to be drawn into the cities, the State must pay for better roads. Springfield appropriates about \$200,000 annually for highway im-



CONTESTANT STARTING FROM HARTFORD.

A few years ago, no social function could have been planned, the success of which depended upon the prompt arrival in Springfield of the occupants of seventy-five automobiles, somewhere on the road between here and New Haven.

"I have the honor to introduce to you as our first speaker of the evening, the first citizen of Springfield—Mayor Ralph W. Ellis."

Mayor Ellis was warmly greeted by the company and, after the applause subsided, expressed his pleasure at being present to welcome the participants in the run, remarking that his feeling would be shared by the assessors of his city, if all the valuable automobiles he had seen enter the city in the afternoon, and their owners, could be in Springfield until the first of next May. Personally and officially he declared his gratitude to the officials in charge of the contest for their excellent

provements, but the State must provide for the country towns; whose limited resources prevent their raising more than a few thousand dollars for all expenses. "Every automobilist must therefore be an advocate of good roads."

PRESIDENT SHATTUCK TALKS.

President Shattuck was then introduced and said: "On behalf of the Automobile Club of America, I desire first to thank the officers of the Knox Automobile Company for this banquet to-night." He then told of some of his own experiences in automobile touring, showing thereby the growth of the sport in America and the continued increase in the character of the machines manufactured in this country. He spoke especially of a trip three years ago this fall from New York to Claremont, in which he said: "Some of the automobiles were strewn along the ditch, some got to

Claremont and a few got back, those who did feeling inclined to pat themselves on the back." He also spoke of the run to Philadelphia two years ago, telling for the first time, as he said, the true story of his arrival in Philadelphia. He got there at

from automobiles, owing to their increasing familiarity with them, and said: "There are a few automobile owners who drive their machine and otherwise act inconsiderately, yet most of us do it as gentlemen should. We don't feel that all of the road

have many good roads here. In some parts of the western section of your State, in the Berkshires, I have found roads as good as any that Napoleon built over the Alps. Yet you might well increase your appropriation for road construction and maintenance. Your road laws are somewhat peculiar. By the method with which each town is assessed \$75 a year for highways to go to the State treasury, all of the money raised thus does not go to road building. I hope sometime to be able to ride clear across Massachusetts on good automobile roads."

After a selection by the Schumann quartet, President Harry G. Fisk, of the Springfield Automobile Club, spoke briefly of his appreciation of the arrangements of the Automobile Club of America in including Springfield in the route of the run. In behalf of the Springfield Automobile Club he congratulated the participants in the contest for their excellent performance to date and thanked President Smith, of the Knox company, for the entertainment which the club could hardly have attempted on such a scale.

CONTEST COMMITTEE HEARD FROM.

John A. Hill, of the contest committee, was next called upon. In a humorous talk he declared that his business on the committee was to do the work, while he let Mr. Scarritt do the talking, and he suggested that the latter be called to deliver himself. After another selection by the quartet, A. P. Langtry, publisher of the Springfield Union, spoke briefly, telling the participants in the run that they should have been allowed another day in Springfield to go about its suburbs and get a better idea of the fine roads and beautiful scenery in its vicinity. He hoped that the glimpse they would get of it would induce them to come again and see more of it. In closing he wished the contestants success, and that they they would all get blue ribbons.

Dr. Walter R. Weiser, a Springfield automobile enthusiast, next gave a few amusing incidents of his experiences with electric, steam and gasoline machines, and Winthrop E. Scarritt, of the contest committee, closed the speaking with a history of automobilism in Europe and in this country.

GUESTS AT THE BANQUET.

The following were among those present at the banquet:

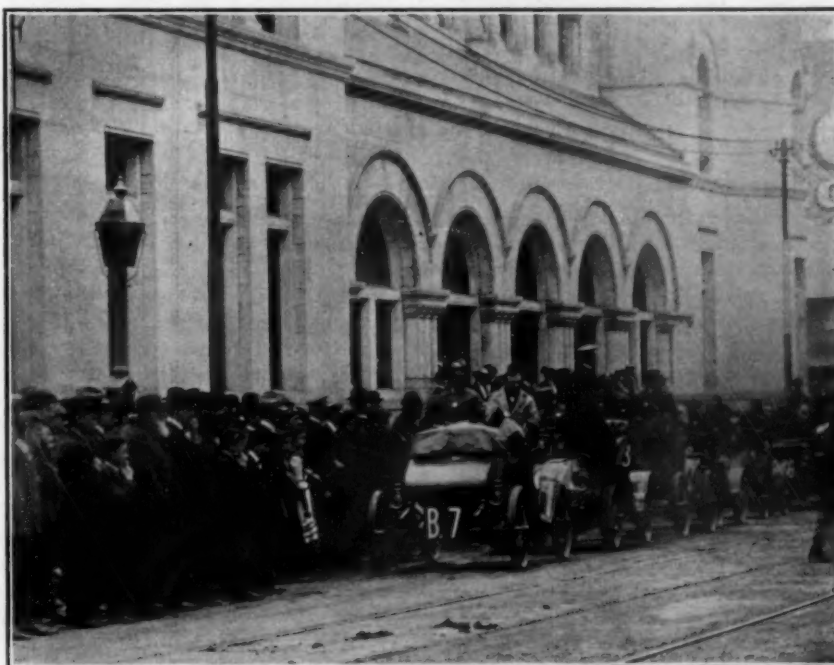
Edmund Hudson, Hartford; A. P. Langtry, Springfield; E. H. Cutler, Springfield; Winthrop E. Scarritt, New York; A. R. Shattuck, New York; Albert E. Smith, Springfield; Ralph W. Ellis, Springfield; H. G. Fisk, Springfield; Thomas M. Hilliard, New York; W. E. Wright, Springfield; Charles E. Van Norman, Springfield; John A. Hill, New York; C. E. Whitney, Hartford; W. L. Ledger, Hartford; C. H. Moyer, Hartford; W. G. McIntyre, Springfield; Walter R. Weiser, Springfield; Frederick A.



BIRD'S EYE VIEW OF NOON CONTROL IN HARTFORD.

11:30 P. M., going the last four miles in a trolley car and leaving his machine in the gutter, whence it was brought to Philadelphia before sunrise next morning. As

belongs to us, yet we have to suffer for the inconsiderate ones who force us to fight against drastic laws, but we hope and confidently expect that in time this oppo-



AT POST OFFICE BUILDING IN WORCESTER—LANE AUTO IN FRONT.

a contrast to this, he announced that at the moment of speaking, seventy-one out of the seventy-five starters in the contest were in Springfield.

Continuing, President Shattuck spoke of the lessening of the danger to horses

sition will cease. Automobiling across the country at 30 miles an hour, we do not consider pleasure. As a club we are opposed to scorching on the highways.

"We anticipate much pleasure on your Massachusetts roads to-morrow. You

Sibley, Springfield; Irving H. Page, Chicopee Falls; James Lucey, Troy, N. Y.; James Lucey, Jr., Troy, N. Y.; William Ropes, Poughkeepsie, N. Y.; G. S. Hill, Haverhill, Mass.; F. A. Hubbard, Springfield; Frank A. Potter, Springfield; F. W. Potter, Springfield; A. O. Very, Springfield; Dr. J. W. Hannum, Ludlow, Mass.; D. L. M. J. Gibbs, Chicopee, Mass.; Dr. L. S. Prefontaine, Springfield; Dr. A. O. Squier, Springfield; Dr. George H. Finch, Springfield; Charles S. Ryan, Springfield; Dr. H. C. Martin, Springfield; F. S. Carr, Springfield, Frank N. Nitt, Kokomo, Ind.; C. M. Chittenden, Columbus, O.; Lawrence Addicks, Perth Amboy, N. J.; J. A. Cutler, Poughkeepsie, N. Y.; H. S. Woodworth, Rochester, N. Y.; George L. Weiss, Cleveland, O.; James Roosa, Poughkeepsie; A. E. Denison, Springfield; W. L. Scott, East Orange, N. J.; W. A. Sweet, Syracuse, N. Y.; K. A. Grout, Orange, Mass.; George G. Foster, Rochester, N. Y.; Lee Richmond, Rochester, N. Y.; Robert W. Blake, Springfield; J. Frank Duryea, Springfield; J. M. Hill, New York; N. W. Whipple, East Orange, N. J.; W. J. Stewart, Newark, N. J.; Frank W. Roche, New York; Joseph F. Padelford, New York; M. D. Chapman, New York; R. I. Newton, Newark, N. J.; Arthur P. Smith, Springfield; Hinsdale Smith, Springfield; W. S. Eaton, New York; F. S. Burke, Nyack, N. Y.; William F. Murphy, New York; J. D. Millea, Springfield; E. E. Schwatzkopf, "Automobile Topics"; H. Hovey Hill, New York; H. A. Page, New York; J. Edward Baldwin, New York; H. M. Mills, Passaic, N. J.; Roland R. Conklin, New York; Harry Fosdick, Boston; J. Ralston Foode, Washington, D. C.; H. H. Whipple, Orange, N. J.; Franklin Weston, Dalton, Mass.; C. H. Gillette, New York; E. P. Moriarty, Kansas City, Mo.; E. A. Wheaton, Newark, N. J.; Philip Tone, Springfield; Philip Tone, Jr., Springfield; M. R. Hughes, Cleveland, O.; A. J. Scaife, Cleveland, O.; Louis Ott, Orange, N. J.; Fred Ott, Jr., Orange, N. J.; A. F. Emery, New York; O. G. Fleming, Mt. Vernon, N. Y.; J. C. Chase, New York; Charles E. Ladd, Springfield; J. H. Bartol Brazier, Philadelphia; Dr. C. E. Hewitt, Springfield; F. G. Webb, Brooklyn, N. Y.; W. H. Kirkpatrick, Hartford; O. K. Raymond, Poughkeepsie; Edward R. Clark, Springfield; C. Harcourt Gurnet, Chicago; W. J. Gould, Orange, Mass.; Charles B. Grout, Orange, Mass.; Park Densmore, Rochester, N. Y.; Henry W. Storrs, New York; Dr. P. E. Doolittle, Toronto, Can.; Charles E. Duryea, Springfield; Dr. H. Power, Montclair, N. J.; Will R. Pitman, New York; F. E. Hopkins, M.D., Springfield; W. I. Davis, Springfield; W. S. Pease, Springfield; W. M. Titus, Springfield; Fred J. Holley, Rochester, N. Y.; E. P. Hart, Rochester, N. Y.; M. H. Winters, Toledo, O.

Awards for the Contestants.

RULES GOVERNING THE CONTEST.

Analysis of the Rules and Regulations Adopted by the A. C. A.—Classifications and Awards.

In dividing the seventy-nine automobiles which were entered for the New York-Boston 500-mile Reliability contest into three classes, A, B and C, according to their weight with tools, fuels and supplies on board (but exclusive of passengers), the Automobile Club of America followed a time-honored precedent. Those who may look among the published results and data of the finished contest for some special significance of this classification, however, will look in vain. It has no bearing on the rules—or the rules on it. It is not represented in the awards, except in so far as the award states the class under which the vehicle was entered. The award, which always takes the form of a certificate, stating the nature of the vehicle's performance, gives in fact the exact weight of the vehicle as well, which is more to the point than a classification embracing a vehicle weighing 1,000 pounds in the same category with another weighing 1,999 pounds. Even the entrance fee of \$50 for each machine was the same for all classes, as properly it should be. Studying the lessons of the contest one may therefore profitably dismiss from his mind all reference to the classification, as it is not a safe guide in comparing results. As a feature in the presented Rules and Regulations and in the official program of the event, it seems to be a mere survival from other events in which the classification did mean something, having reference to conditions of entry, performance, records and awards.

CERTIFICATES FOR CONTESTANTS.

To some extent the same reservation may be made in regard to the certificates issued to the contestants who finished within the rules. These also are divided into three classes, first, second and third. One form of certificate might be sufficient, since they are all based on the average speed of the vehicles and there is little to be said in favor of putting a vehicle which makes 11.9 miles per hour in a class inferior to that of another vehicle which makes 12.1 miles per hour, so long as the certificate gives the exact speed of each.

AVERAGE SPEED EXPLAINED.

For understanding the rules of the contest it is essential to keep in mind that the term "average speed" does not mean the designed average speed, but is calculated in a manner intended to reflect the reliability of the vehicles and not their speed capacity. In some respects it is an artificial quantity, as when the speed is figured at zero between two control stations if it falls below 8 miles for that distance. By this ruling an automobile which

has troubles on the road, causing delays of say one hour on each period of the trip (a "period" being a half-day's run), may get a much higher rating for average speed than another automobile which goes through close to the highest average speed allowed—14 miles—for all periods except one, but in this one suffers a mishap which causes a delay of, say, two hours and brings the average for that period below 8 miles. Its performance would ordinarily be rated as better, and indicating a higher degree of reliability than a performance riddled with a repetition of smaller troubles. In this contest, however, it would be counted out entirely for one out of the twelve periods of the trip, and its average for the whole trip would be much reduced.

The supposition under which average speed is accepted as an indication of reliability is that all of the vehicles are capable of the highest speed permitted and that the drivers will keep them up to that speed if they can. Under this supposition—which undoubtedly holds good for all the automobiles entered in the contest—the only factors which could be expected to reduce average speed would be stops and delays due to imperfections in the machines, and bad conditions of the roads. The road conditions would be alike to all, and, if poor, would operate most heavily against the least perfect machines. While reducing the average of all, bad roads are therefore in reality desirable for a reliability contest of this kind.

DEDUCTIONS FOR DELAYS.

Under the rules all delays which do not indicate any fault in the vehicles are deducted from the actual time before the average is calculated. Among these are all stops due to tire troubles, it being considered that the reliability of tires and the reliability of the vehicles in other respects should not be confounded. The time consumed for penalized stops, on the other hand, is not deducted, and herein consists the penalty.

By this method the "average speed" has been made to serve as an indication of reliability of construction, although the event was in no sense a speed test. By keeping an account of all tire troubles the material gathered by the club on this occasion also constitutes a test of tires—the first which has been held in this country, but one which, on second consideration, will be found to apply only to that class of pneumatic tires ordinarily used for road machines.

If any vehicles had been entered in this contest which were never intended by their designers for the speed of ordinary road automobiles, the system of "average speed" would not have been a

fair one for indicating reliability; but no such vehicles took part.

SYSTEM OF OFFICIAL REPORTING.

What lends unusual importance to the results of the contest is, chiefly, the precautions taken by the club for reviewing full and impartial reports from the gentlemen appointed to observe the performance of each machine and to make careful notes of all repairs, and the rules by which such repairs are limited to what any ordinary tourist would find it possible to have done.

Among the rules having the enforcement of this principle in view, are the following:

"On the morning of each day of the run it shall be the duty of the official observer to report to his vehicle at the garage at 7 o'clock, when it is turned over to its owner, and remain with it as far as possible until it is ready for the start at 9:00 A. M. During this time he shall keep a record of all repairs made to the vehicle or replacements of parts."

The observer has the same duty at the noon stop for luncheon, and en route.

"On arriving at the night control the official observer shall remain with his vehicle until its tanks have been filled with water and gasoline, and it has been placed in the garage in charge of the committee's guards. No adjustment or repairs are to be made on the vehicle on arrival at the night control, or while it is receiving water and gasoline.

REPAIRS AND ADJUSTMENTS.

"At 7 A. M. each contestant may take his vehicle and under the eye of the official observer make such lubrication, adjustments and repairs as may be necessary. No one will be permitted to enter the garage, except the official observer, the owner or driver of a vehicle and his mechanic, and such local assistants as may be employed. Contestants will not be permitted to have mechanics or assistants traveling by train to do work on their vehicles.

"During the luncheon hour at the noon control contestants may take on fuel, which will be available, and make such adjustments and repairs as can be accomplished with the tools and extra parts carried on the vehicle, and with such local assistance as may be readily obtained under ordinary touring conditions, but will not be permitted to have work done on their vehicles by their mechanics or assistants traveling by train."

The system embodied in these provisions is the same as has been followed in Europe during the past year, and is there known as the "park" system. The main feature is the closed "parks," where the vehicles are guarded against their owners and drivers as well as against outsiders, so as to insure a correct record of everything that takes place.

Aside from the certificates accorded

by the Club, four cups for reliability were presented by President Shattuck, W. E. Scarritt, the president of the American Automobile Association, George H. Chamberlin, and James Hill, all prominently identified with the club's work. The awarding of the prizes was to be determined by the number of "reliability marks" obtained in the contest.

These reliability marks represent the average speed of the vehicles on the same principle as in the certificates, only carried out with greater accuracy and with no penalty for falling below 8 miles per hour for any one period. Naturally, however, no contestant falling below this limit could hope to obtain a prize.

MAKING UP LOST TIME.

One of the most interesting clauses among the rules states that,

"Vehicles are not permitted to make up the time lost during penalized or during non-penalized stops by exceeding an average rate of speed of fourteen miles per hour, but the time lost during non-pen-

alized stops will be credited upon arrival at controls."

The inference from this rule is, of course, that the vehicles may make up time lost in other ways. For example, if a vehicle on some long hill finds itself reduced to five miles per hour—without being brought to a standstill at any time—it may make up for the loss by any desired speed above 14 miles so long as it keeps within the legal limits. If it should make up not wisely, but too well, however, it would run the risk of disqualification. Its total running time between controls, after deducting time for either permissible or penalized stops, must not figure out above 14 miles an hour.

If a vehicle is taken in tow it loses the period where the towing takes place, whether it falls below an average of 8 miles or not. Open mufflers are prohibited.

These are the principal rules by which the general character of the contest was determined.

Boston and Return to New York.

BOSTON TO SPRINGFIELD.

Rest Day in the Hub and Start of the Return Trip on Monday October 13.

In Boston the rain lasted through Saturday night, but stopped early on Sunday morning, the skies clearing about noon. The garage was accessible only under the following conditions:

"On Sunday, October 12, the garage will be open to contestants between the hours of 7:00 A. M. and 9:00 A. M., with the understanding that the official observer is to accompany the contestant and to enter upon his record (under the caption—"Sunday in Boston"), a detailed account of all repairs made.

"Between 9:00 A. M. and 5:00 P. M. automobiles may be taken out of the garage and run about Boston, provided the automobile is accompanied by its official observer, who will record all the repairs made during those hours.

"Throughout the contest observers must record accurately the time of all stops in minutes and seconds."

Many availed themselves of the first clause and, under the eye of the observer, gave to their cars a careful overhauling. On Sunday evening it was announced that the return start would be made at 8 A. M., instead of 9 A. M., as originally announced.

BEGINNING OF FOURTH DAY.

All hands were active early on Monday morning, and long before 7 o'clock an eager crowd of contestants, each with his observer in tow, stormed the doors of the inner division of the great freight shed which is now the Harvard Automobile Station No. 2. Two policemen guarded

the chain across the doorway and refused admission to all until 7 o'clock had struck. Before a score had made their way in, the three Oldsmobiles, Nos. 63, 64 and 41, were run out, to claim places, Mr. Fisk's Panhard, No. 66, being in company with them. In this scramble for place the gasoline cars had the advantage over the steam cars, which were run out of the garage by hand before starting the fire.

STARTED ON TIME.

The start was made on time, and by 8:45 o'clock, seventy cars had started, one being delayed and starting at 9 o'clock. This made only four missing out of the original seventy-five which started from New York. One of these, No. 40, started later in the day and came through. Of the three missing cars, No. 50, the Ne'tel electro-gasoline, had withdrawn early on the outward run; No. 22, Foster, did not attempt the return trip, having burned out a boiler; while No. 54 remained in Boston. This car, Dr. Hovestadt's De Dion, had been very unlucky. Between New Haven and Springfield it had broken a steering knuckle in turning out to avoid a dog, losing 45 minutes, while the broken post was repaired. Early on Saturday the same knuckle broke again, the other one going at the same time. This damage was repaired, after a delay of some hours, and the car arrived in Boston late on Saturday night, but her owner decided to abandon the return trip.

WEATHER VERY PLEASANT.

The weather was pleasant in the extreme, the sun was shining, a light southwest wind was blowing, and the air was mild and warm; more like spring than fall.

All started in good spirits for a successful run to New York. The streets of Boston were in poor condition, macadam with a flat crown, and many holes in which the water still lay. Outside the city some stretches of very good macadam, well crowned and with a hard, smooth surface, were met. In the small towns where the roads were shaded by many trees there was an inch or more of mud, with pools of water. The average speed of the procession was about 18 miles through the morning. The arrows were few and far between on Saturday, but in the interval the Massachusetts Automobile Club had put up new ones, of unpainted tin, over the whole route to Worcester.

FEWER SPECTATORS ABROAD.

There were fewer people in the streets to see the cars than on Saturday afternoon, but the children were out at each school. Orchards lined the way at frequent intervals, and apples without number were tossed into the cars. The view of Wellesley College and the hills to the northwest was very fine under the morning sun, and the road here was a pleasure, but through Natick and South Framingham the streets and roads were poor, the surface being muddy. It may be said here that there was no really bad road on the whole day's run, the worst being the dirt or poor macadam roads with a muddy surface.

This time the correct road was found, through Southboro, over very good macadam roads from outside South Framingham, most of the way, on through Northboro and into Shrewsbury. Just outside Northboro was a turn that fooled a number of cars. The main road ran on straight, with a red house and a barn on the right hand, up a slight hill, and what appeared to be a private roadway between them. This was in reality the proper road, marked by an arrow, but it was very easy to pass it by.

FINE VIEW NEAR WORCESTER.

On approaching Worcester there was a fine view of the distant hills, as well as of the town itself, located on a hill. Just at the city limits a private car was standing, the owner calling out to each contestant to beware of a "Bi cop" a little way up the street; and this was repeated a little further on by another thoughtful motorist who stood beside a big tonneau. It seems that the police were on the alert for scorches, and ready to make arrests.

A number of small mishaps were reported at the noon control, several being hard at work over small repairs. The start was made at 12:45 o'clock, the cars running out over a poor city street, but finding much good macadam through Leicester and Spencer to East Brookfield. On Leicester Hill, however, with a 15 per cent. grade, the surface was bad, and many came to grief and spoiled perfect records. There was by this time a strong head

wind, and with puddles and a slippery surface the road was pretty hard, stopping cars which could and should have mounted had they been fully prepared for just what was coming.

At Spencer came another hard climb, and then came the descent of the East Brookfield Hill, the *bête noire* of the outward trip. The winding road between West Brimfield and Palmer was as picturesque as on Saturday, and then came the Chicopee River, along which the road ran.

ARRIVAL AT SPRINGFIELD.

There was some good macadam near North Wilbraham, and generally good roads into Springfield, where the cars arrived between 4:15 and 5 o'clock. Many had been stopped from tire troubles or other trivial causes, but there had been no serious mishaps.

SPRINGFIELD TO NEW HAVEN.

Record of Events in the Fifth Day of the Reliability Contest—Tuesday October 14.

The festivities of the previous evening had but little effect on most of the party, and cars were run out of the garage as soon as it was opened, at 7 o'clock, the Olds, of course, being among the first half dozen. The start was at the regular hour, 9 o'clock, and in the interval the length of Marble Street, from Main Street to the garage, was well filled with spectators, many ladies being present. The small boy was everywhere, scores of them being on hand anxious to earn a ride for the length of the street by carrying water or wiping off the cars. Some good natured drivers ran down to their places at the end of the starting line with front seats and tonneaus overflowing with small boys. The lines formed along each curb, the right and left cars starting in alternation.

The sun was shining in a clear sky, and the light southwest wind was mild and even warm; with a short stage of but 26 miles for the morning, and only 42 miles more for the afternoon, there was every promise of a pleasant run.

CONDITION OF THE ROADS.

The streets leading to the river were indifferent, and at the railroad crossing a number of the leading cars were stopped by a train. Crossing the Connecticut River and turning south along its west bank, the worst roads of the route were met. The rain, together with the repair work going on since Friday, had made them materially worse than on the outward run. The old roads, of dirt, of an indifferent quality, were improved by the dumping of a red clayey gravel in the center, which was several feet higher than the sides; the crown of this ridge being cut into deep ruts. The method and material were both akin to the old system under which the farmer worked out his road taxes by digging out the ditches and

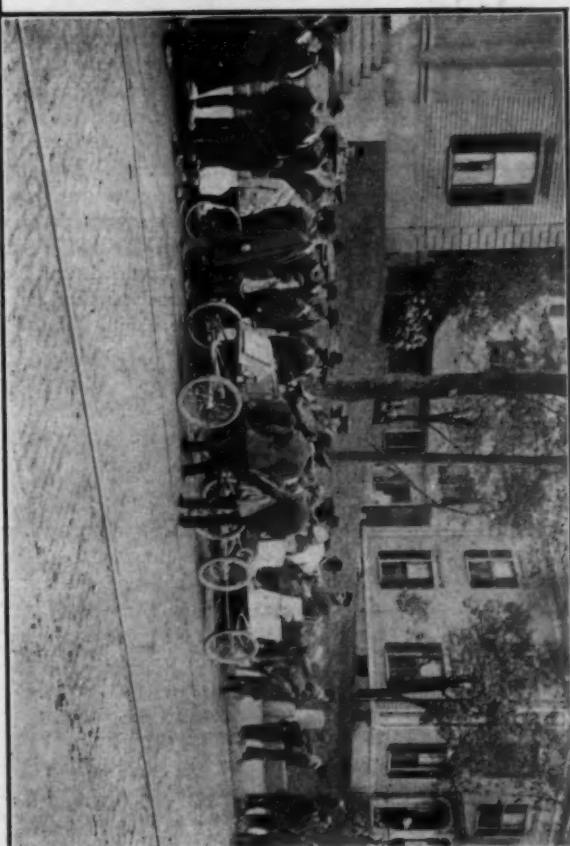
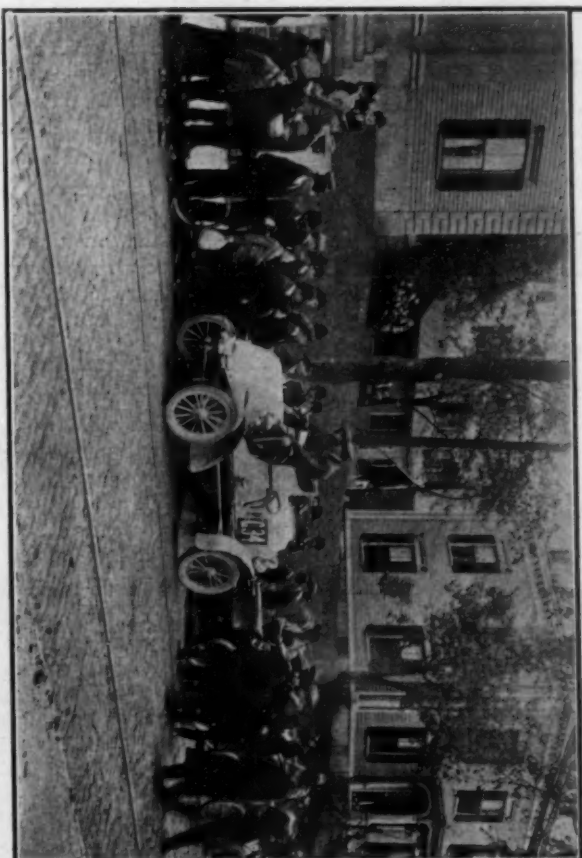
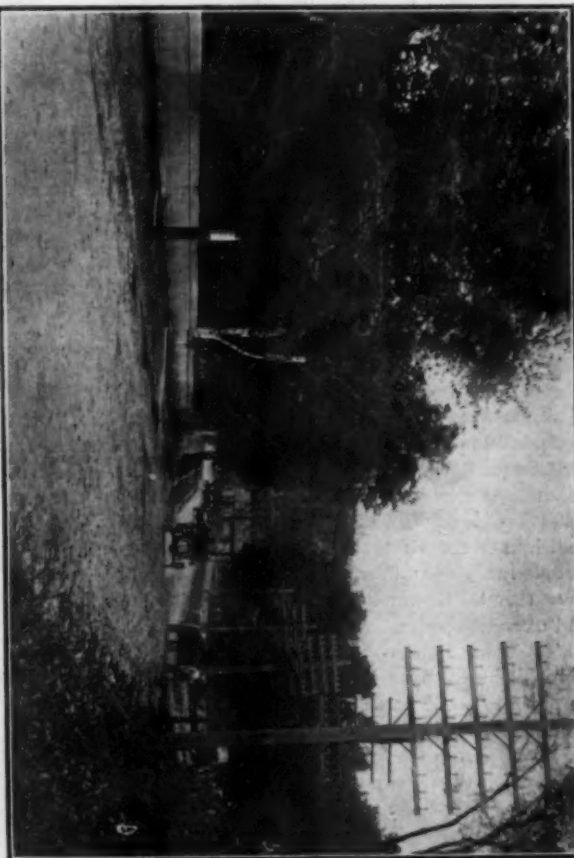
piling the soft earth high in the center of the road. A couple of miles of this road were negotiated below the bridge, leading to an old road of sand, which was in fair condition; then came a particularly bad stretch of deep ruts, the carts being at work dumping fresh gravel, apparently with no provision for rolling it. The cars ran at a good speed, well over the 14-mile average, in spite of the roads.

GOOD ROADS IN VIEW.

A couple of miles north of Thompsonville a piece of good macadam was met, but below the city the roads were again bad. From this point a beautiful view was had of the hills on the right hand. Many of the farms in this section and for miles south had tobacco barns, with sections of the sides and ends hinged at close intervals, the open shutters showing the bunches of brown leaves curing within. At different points were fields enclosed by a system of high trellises with sides and top covered with a thin cloth, the tobacco being grown within this covering.

Orchards abounded, and under the trees were piles of red, yellow and green apples, while at intervals along the road were wagons filled with apples, on top of them being a barrel or two, all bound for the cider mill. At one point on the outward journey, where the dust was thickest, a country cider mill stood right by the roadside, with the mill grinding up the fruit and the brown juice running from the presses. It was hard to pass it, but there was no provision for such temptations in the list of unpenalized stops. At different points on this day's run, as on the previous day, the farmers were busy with the corn crop, the bundles of cornstalks being fed into cutting machines and after cutting being carried by conveyors up an inclined way to the top of the storage houses. These were circular towers, built much like a great tank with vertical sides hooped with iron and with a conical roof. A door near the top received the cut fodder, which was preserved from all contact with the air.

At the entrance to Windsor Locks a man called out a warning of a short but bad descent into the town, which was just as pretty and picturesque as it appeared when taken in the opposite direction on the outward journey. The roads were better here, with a good deal of macadam, but at Windsor a bad obstacle was encountered. The workmen were busy with a new stretch of macadam. At the foot of a short, steep hill was a length of nearly a hundred yards of half-made road, the first layer of large stones with spaces packed by small stuff, being sharp and rough. Driving over this at the risk of serious punctures, a big road roller and piles of broken stone were met, blocking the way so that all the cars were forced to turn into the ditch for the first part of the climb.



Nearby Worcester, Mass.— Cars stalling the grade leading to Main Street.
 Timing the arrival of S. T. Davis Jr's Locomobile Car.
 Recording the arrival of Rambler and Great cars on Main Street.
 CARS ON THE ROAD APPROACHING WORCESTER, MASS., AND AFTER ARRIVAL AT THE NOON CONTROL ON MAIN STREET, OCTOBER 11.

CAME SLOWLY INTO HARTFORD.

As usual the fleet of cars ran ahead of the schedule and had to come into Hartford very slowly, the leaders arriving about 11 o'clock. The Riker tonneau, No. 29, reached the Hartford control, but was towed away for repairs, the countershaft being disabled.

There was ample time for dinner before the start at 1 o'clock; at the word the long line of cars ran out over a good road, lined with handsome residences, to West Hartford and on over a succession of good macadam roads, from which a light dust arose. Starting among the first, the Davis steam car, No. 34, was stalled by some trouble about 8 miles out. The sun was very warm, but the wind was well ahead and blowing quite fresh, with a decided coolness to it, but with hard, smooth roads beneath the wheels and such views as that near Berlin Station, of distant hills in autumn foliage, to rest the eye, the conditions were all that one could ask. Except for one rather rough dirt road above North Haven, the roads were very good over this stage. Near this place Mr. Fisk's Panhard stopped for a puncture, and a little distance further on the De Dion, No. 71, the same car that Kenneth Skinner drove last year in the Buffalo run, broke her piston and was, of course, stalled, with some eight miles yet to go. When Mr. Fisk came up after making repairs he kindly took the little motorette in tow and brought her in to New Haven. In answer to a telegram a new piston was shipped at once and on its arrival the engine was taken apart and overhauled, the work occupying all the night. Early next morning she was at the head of the line, ready for the last run.

ENTRY INTO NEW HAVEN.

The entry into New Haven, as on the outward trip, occurred just as the schools closed, and the streets were thronged with children. They filled the roadway and played tag with the cars, running across in front of them with utter disregard of danger. It speaks well for the care with which the cars were handled that no accident happened, as there was every chance of a boy falling, or even being pushed by a comrade under the wheels. As the cars were timed at the night control a street car passed with one of the Yale football teams on board, a burly rowdy in padded armor, who rode on the front platform, quickly snatched the red cap from a timer while he was in the act of signing an observer's book, and it disappeared from the Reliability Run to decorate the lair of some college student. The cars were stored again in the old New Haven Wheel Works sheds, the Olds and their rivals, the Rambler, taking places close to the gate in order to be the first out of the garage for the run home, while the light steamers and heavy tonneaus, with their glaring numbers, made a motley array under the sheds.

NEW HAVEN TO NEW YORK.

Last and Sixth Day of the Reliability Contest—Wednesday October 15.

Enjoyable as the whole trip had been, in spite of hard work for some of the contestants, all hands were eager to see the Plaza once more, and it was a certainty that many, especially those who had failed of a perfect score for the week, would make a rush to enter New York first, for the sake of the advertising value of an early arrival. To forestall this the committee issued the following notice, hastily printed and distributed to every observer and contestant just before the start, similar notices being posted at each hotel:

IMPORTANT NOTICE.

From Norwalk to the finish of the contest at Fifth avenue and Fifty-eighth street in New York no contestant will be permitted to pass the Committee cars, two in number. These cars will carry a red flag conspicuously displayed, bearing the letter "C."

Any contestant violating this rule will be immediately disqualified.

In this connection attention is called to foot-note on page 13 of Official Program.

WINTHROP E. SCARRITT,
JOHN A. HILL,
S. M. BUTLER,

Secretary.

The morning was clear and bright, but decidedly cooler, the southwest wind having an edge which was lacking on the previous day. All hands were astir early, breakfasts were eaten at 6 A. M., and on the stroke of 7 o'clock the first cars were run out of the garage, racing for the head of the line. There was even more than the usual bustle and tumult, all hands were good-natured and in high spirits, and the air was rent with the ringing of bells and the hoarse toots of horns. Students and not a few pretty girls mingled with the small boys and loungers who filled the street.

START PROMPTLY MADE.

The start was given sharply on the hour, the little De Dion going ahead. Running out of the city, the keen salt air from the marshes mingled with the fragrance of burnt gasoline and exhaust gases and told that the mountains were left far behind, though there were still some hills ahead. Going out by Savin Rock, after a little poor dirt road there was a stretch of good macadam, followed by a fairly good dirt road, which was very poor through Milford, 13 miles out. The macadam began again when west of Milford, and ran on through Stratford, but the freshening breeze kicked up a good deal of dust. Entering Bridgeport the dirt road was bad. Between New Haven and Bridgeport a number of cars were stopped for different causes, none of which were apparent in passing them hastily. "Tire troubles," like charity, covered a very comprehensive catalogue of evils, the exact nature of which will only appear when the official report is completed. What was a "Smoky Sou'wester" far out on the Sound was a very, very dusty Sou'wester a mile or so inland, quite as bad as on the outward trip. The big cars knocked up great clouds of dust and even the light ones did their share.

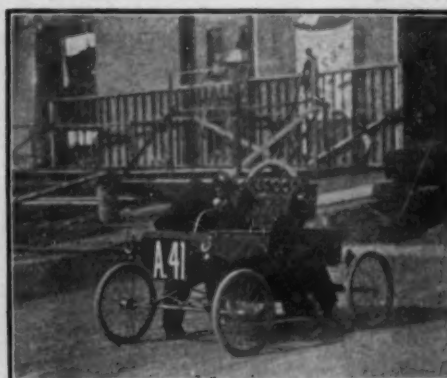
AT THE NORWALK CONTROL.

The Norwalk control was made about 11:30 o'clock, and no time was lost in storing up the tanks, all being eager for the first places in the line. The arrangements for luncheon at the Norwalk House were very satisfactory and all hands were promptly served. Shortly before 1 o'clock the committee started out in the two pacing cars, and on the hour the contestants were sent away. When just outside the town the road was poor, being heavy with a new coat of gravel, then came some fairly good dirt varied with macadam, the remainder of the road to the finish being generally good. Except for the dust, which grew worse and worse, the afternoon ride was an easy one and very pleasant, lying through an attractive country. A good many cars which had got over the road in good shape came to grief on the last day, and particularly on the final stage, though most of them managed to finish. Several were stalled not only within the limits of the city, but on Fifth Avenue, almost within sight of the Plaza.

Entering Seventh Avenue, and again on Fifth Avenue, many people were in the streets and the roadway was crowded with small boys, whose efforts were directed to throwing their caps under the wheels. It was such mischief as this, at Stamford on the way out, which almost crippled the new Fournier-Searchmont, No. 67, driven by Mr. Bunting. A boy threw his cap into the chain on the right side and the tangle of cloth and cardboard or leather put a strain on the chain which bent the countershaft, doubled up the strut until it nearly touched the ground, and finally broke the chain. Throughout the rest of the trip, owing to the impossibility of straightening the crankshaft, the chain ran slack and tight at each revolution and broke several times.

ARRIVAL AT NEW YORK.

All the way in from Larchmont cars were met bound out to see the end of the run, and there were quite a number near the finish. As each car neared the Plaza after slowly picking its way through the thick jam of traffic on the avenue, it ran into a narrow lane between two large crowds of spectators, kept back by policemen. The timers passed down the line recording the time of arrival on the last sheet of the record book, the car moved ahead to the corner of Fifty-seventh Street and the book was delivered by the observer to one of the officials, in the presence of Mr. Butler, this ending the memorable Reliability Contest.



Replacing an Arrow Road Mark.

The Gallery at New Haven.

Getting Ready to Start an "Outside" Car.

Street Obstruction in Marlboro, Mass.

A Stop for Adjustments.

Street Scene at Noon Control in Hartford.

SNAP SHOTS OF INTERESTING SCENES ON THE ROUTE OF THE RELIABILITY RUN FROM NEW YORK TO BOSTON.

SCENES AT THE CONTROLS.

Incidents of the Return Trip at the Official Stopping Places—Day and Night.

After a night of steady soaking rain and a gloomy Sunday in Boston, which many contestants improved by cleaning and overhauling their machines in the garage, all of the operators and their observers were eager to take advantage of the notices posted in the hotels, announcing a change in the time of departure on Monday, from 9 A. M. to 8 A. M. This change was made because of the length of the route from Boston to Worcester, and on account of the changed road conditions due to the rain.

THE DEPARTURE FROM BOSTON.

The start was promptly on the hour—a statement that can be justly made of the starting from all of the controls throughout the run. The Automobile Club of America has earned a reputation for unusual promptitude in the conduct of all such affairs, and, even were the contestants themselves not full of enthusiasm and eager to get away, like spirited horses, the activity of the official starter and timers and the rules of the contest would have prevented delays. As the watch hand approached the appointed time, a din of tooting horns announced the readiness and indicated the eagerness of the drivers of the two rows of cars, lined up along the curbs back of the starting point, to get off. Only a small crowd had collected, owing to the earliness of the hour, so that the work was not interrupted, and by 8:20 A. M. all but one or two machines were on the way.

IN AND OUT OF WORCESTER.

Word had got out to the effect that the Worcester police intended to arrest any contestant guilty of exceeding the legal speed rate inside of the city limits, and in consequence Secretary Butler sent orders to the officials at the Monday noon control to move the green flags, indicating that the speed must be reduced to 8 miles an hour, and the white flags, that the speed may be increased, farther toward the outskirts of town. Two men in an automobile were also sent out to warn incoming contestants of the police watchfulness. Whether owing to these precautions or because the threat was a false alarm, no one suffered any interference at the hands of the local authorities. With mild, sunny weather and freedom from dust, the hour and a half stop in Worcester was a pleasant and picturesque one, the machines with hoods and back covers raised exposing the engines for examination, the tool boxes and folding seats open, seat cushions disarranged, operators filling gasoline and water tanks before partaking of a hasty luncheon at the Merchants' Association restaurant, as called for by the coupons issued by the club. When all of the seventy vehicles lined up

for the start, on the right side of Main Street in front of the Robinson Automobile Station, just far enough apart to permit the easy passage of persons between, they formed a line fully two blocks in length.

CLIMBING LEICESTER HILL.

Five miles out of Worcester the dreaded 15 per cent. grade, just east of Leicester, was encountered. It has a surface of clayey consistency and was somewhat rough from travel following the rain. Nevertheless, most of the machines mounted it readily, two only coming to a stop—a motorette and a light steamer, the latter only momentarily—and one big tonneau having to be pushed over the crest by its four occupants. Especially worthy of note was the celerity with which all of the White steamers, including the two 1,600-pound delivery wagons, surmounted the hill. The Automotor, B 65, made noticeably excellent time on the ascent, while most of the powerful tonneaus went up at good speed. Only one driver of a machine—gasoline—resorted to the well-known recourse of zig-zagging from side to side of the road to gain the benefit of decreased grade. There was much good natured chaffing between the contestants on the hill, but no teams nor towing were required.

IN SPRINGFIELD AGAIN.

The Springfield night control on the return trip was a repetition of the one of the preceding Friday, the weather and all other conditions being most auspicious. The features that will make the night in Springfield memorable were the theater party at the Nelson Theater, given by the J. Stevens Arms & Tool Co., and the smoker that followed at the Hotel Worthy, by the courtesy and hospitality of the same makers of the Stevens-Duryea vehicles. A good farce comedy presented at the theater by the Weber & Fields Company was made doubly attractive to the motorists by the introduction of a number of jokes cracked by the actors at the expense of some of the well-known personages connected with the industry, and by bringing in upon the stage the leading stars in a Stevens-Duryea car. At the smoker brief addresses were made by Winthrop E. Scarritt, chairman of the contest committee. W. E. Stewart, who acted as toastmaster, Prof. I. H. Page, president of the J. Stevens Arms & Tool Co., E. Britton, E. E. Schwartzkopf, Percy Owen and several others.

In the course of his remarks, Mr. Scarritt made the suggestion that the Automobile Club of America, in 1904, promote an endurance run from New York to St. Louis, 1,000 miles, and place no restrictions on the operators than to require them to reach St. Louis inside of 14 days, and in not less than 10 days, they to select their own route and take along an observer appointed by the club, all of whose expenses would be paid by the contestant.

Mr. Schwartzkopf brought forward the suggestion that in future endurance or reliability contests of more than one day's duration, the observers be changed to different machines in order that the enthusiasm for the car in which he is riding and his close association with the contestant will not prove prejudicial to the accuracy and completeness of the reports.

Following the addresses, an automobile "experience" meeting was held, which was hugely enjoyed by the visitors.

DEPARTURE FROM SPRINGFIELD.

Notwithstanding the entertainments of Monday night, the departure from Springfield Tuesday morning, October 14, was prompt and smooth. The officials, contestants and observers were in joyous mood because of the remarkable success of the run up to that time and the dawn of a day of magnificent weather that held forth promise of a continuation of that success and a more comfortable journey over fine roads, free from the dust that prevailed on the outward trip.

NOON CONTROL AT HARTFORD.

Nothing on the road occurred to occasion delays and the whole string of seventy vehicles entered Hartford and arrived at the noon control in a closely formed procession. The police arrangements, which had been intolerable on the preceding Friday, were now above reproach, equaling, if not surpassing, the policing in Boston, where there were much smaller crowds to handle. During the arrival and departure on Tuesday the street was closed to traffic by teams, and the cyclists and pedestrians were kept well back to the curb. As the street is broad, paved with asphalt, and is free from car tracks, the movement of the motor vehicles was in no wise interfered with. As before, many hundreds of spectators turned out to see the unaccustomed sight. The fact that Hartford is a large manufacturing place for automobiles, motorcycles and bicycles, and that more motor vehicles are owned there than in any other city in Connecticut, is responsible for the great interest displayed in the Reliability Run.

Leonard D. Fisk, in his huge Panhard, B 66, arrived first, closely followed by the Oldsmobile, A 63, the Knoxmobile, B 47, the "Fiat," B 49, the Oldsmobile, A 64, F. A. La Roche's Darracq, B 44, and Oldsmobile, A 41, and then the entire procession.

By this time the officials and participants had become so accustomed to the work at the controls that the starting was very expeditious, all the contestants and operators having lunched at the Allyn House and returned to their vehicles, where they waited impatiently to get away again.

THE COLLEGE INDIANS IN NEW HAVEN.

New Haven will go down in the annals of motoring as a town to be avoided in the future, at least in contests of this kind. Not only the small boys pelted the occupants of the vehicles with dirt and rub-

bish, but the students stole the green and white flags, and one, standing on the platform of a passing street car, snatched

refilling the tanks and storing the machines were very much better than on the trip out, the gasoline machines being lined

provided and the work was done smoothly. There was none of the tedious waiting of the contestants and observers that oc-



CONTEST COMMITTEE'S CAR—JOHN A. HILL DRIVING, W. E. SCARRITT ON HIS RIGHT.



APPERSON BROS. CAR—ELMER APPERSON DRIVING, SECRETARY S. M. BUTLER ON HIS LEFT.

Timer Weir's cap and kept it to become, like the flags, a decoration for his room. The arrangements at New Haven for

up on one side of York street, and the steamers on the other, to avoid confusion. Thirty-three 5-gallon cans of fuel were

curred at the arrival on Thursday night, October 9, and all were able to reach their hotels in time to get early suppers.

THE LAST NOON CONTROL.

The caravan was promptly on time at Norwalk, and after a good luncheon at the Norwalk Hotel, the contestants lined up as usual for the start at the white church. The tourists were met at Norwalk by Albert C. Bostwick, who came down by train, although his new Pan-American tonneau, enameled in red, was brought down by road by Wm. M. Power, Mr. Bostwick's mechanic, from the Mamaroneck factory. Mr. Bostwick's physician has forbidden him from riding in motor vehicles temporarily, and next week he is to go to the hospital again to have an operation performed on his head. The new car attracted much attention from the motorists.

I. W. England, accompanied by Mrs. England, Miss Wise and Mr. Jennings, also met the cavalcade at this point in a fine new 10-horse power Peugeot. On the out trip they had come as far as Norwalk to see the contestants off.

START OF LAST PERIOD.

Starter Thayer also met the returning contestants here and resumed his official position. The departure on the last stage of the contest was led by the Stevens-Duryea, B 31, and the Darracq, B 44, followed by the two Oldsmobiles, A 63 and A 64, and the Knoxmobile, B 47, and the other Stevens-Duryea, B 30. S. T. Davis, Jr., in his 2,400-pound racing Locomobile, did not arrive in Norwalk until after 2 P. M., and a Winton touring car was delayed in starting because of trouble with a tire. The difficulties on the home run were chiefly laid to the account of "tire troubles."

ARRIVAL AT NEW YORK.

Almost exactly at 4 o'clock Wednesday afternoon the committee vehicle, which no one was allowed to pass, pulled up at the Central Park Plaza in New York and immediately after it came ten automobiles in a bunch, disputing each other for precedence and creating a jam on Fifth avenue which was already crowded with the ordinary traffic and lined with sightseers. Immediately President Shattuck confronted the throng and ordered the control removed one block south to the corner of Fifty-seventh street. This relieved the congestion. The first ten bore numbers as follows: 30, 63, 47, 31, 64, 44, 39, 37, 70 and 52.

At very short intervals followed 20, 21, 46, 67, 16, 24, 10, 11, 12, 66, 62, 77, 25, 26, 75, 65, 28, 27, 29, 32, 17, 18, 58, 68, 2, 55, 42, 51, 35, 57, 3, 23, 56.

This last car, a United States Long Distance, had suffered serious injury just out of New Haven. It had previously received a severe shake-up by the collapse of a tire. After leaving New Haven it struck a hole in the road and broke the right front spring. Two blocks of wood were strapped in the open of the spring from clip to clip, and in this manner the next 80 miles were covered.

Toward 5 o'clock a number of others came straggling in, namely 45, 41, 76, 48, 71, 80, 4, 33, 7, 60, 61, 8, 5, 79, 73, 1, 59, 13, 49, 36, 42, 38. No. 36, a Locomobile, ran out of water within the city limits of New York and thereby marred an otherwise perfect score with a stop. So said the observer. No. 42, a Fournier-Searchmont, ran out of gasoline between Fifty-eighth and Fifty-seventh streets, but having passed the home control where it originally was, was, of course, counted in.

When the contestants, tired and dusty, returned to New York, at the close of the run, they were informally received at the quarters of the Automobile Club of America, Fifth Avenue and Fifty-eighth Street. A champagne lunch had been prepared and many of the friendships formed on the run, among the contestants, gave subjects for toasts and good wishes.

BOSTONIANS FOOLED TWICE.

Headlines Kill Off Many Contestants in the Run Out
—Good Showing for Pope-Robinson.

BOSTON, Oct. 13.—While the contestants of the reliability run were resting from the contest over Sunday in Boston, they had an object lesson of the inaccuracies of the average daily paper in dealing with the automobile. When the visitors picked up one of the big Boston Sunday papers to read about the first half of their run, some of them were surprised to see the headline "About Half the Machines Have Dropped Out." For everybody knew that about seventy machines had reported in Boston in time to be recorded, and this was out of a total list of seventy-five. They wondered what the trouble could have been with the reporter who wrote the story; but glancing at the article itself they found that the reporter was all right. What he said was that less than fifty per cent. of the machines that started in the contest had completed the first half of the run "with clean scores!" He knew what he was talking about; the trouble was that the headline writer who prepared this "copy" for the typesetters had gone stupid, or had altogether misunderstood what was plain enough to anybody who had taken merely a casual interest in the widely-heralded conditions of the run. That headline was only a momentary set-back for the enthusiasts, however; the actual performance of the autos for the first half of the great run was good enough to put everybody in fine humor during the brief rest in Boston.

While the first cars were arriving at the Boston control, there was a little fun over Royal R. Sheldon, a well-known member of the Massachusetts Automobile Club, and his handsome Pope-Robinson car. The car, finished in red, with a canopy top, makes a showy appearance, and is modeled on French lines. Mr. Sheldon had it out Saturday afternoon, and met President Shattuck somewhere near the city limits,

accompanying him thence over the flag-end of the course into Boston. As the cars came swinging down Columbus Avenue, and drew up at the control, several of those standing near took it for granted that Mr. Sheldon's car had come through from New York with the rest. As he pulled up, somebody asked:

"Did you have any stops?"

"Came right through and never turned a hair!" was the jocose reply.

"Machine looks pretty clean, doesn't it?" somebody else suggested, a little doubtfully.

"Well, you see," explained the owner, without cracking a smile, "it was this way. We found we were ahead of our schedule, so while we were killing time outside the control we just wiped her over a little, and got the dust off."

That "held" them until he could get out of the crowd, and he didn't wait to show any "record sheets."

Reception By the Boston Club.

One of the most enjoyable features of the Automobile Club of America's reliability run to Boston and return, was the reception tendered the members of the run by the Massachusetts Automobile Club of Boston on Saturday evening. The members of the club were on hand in force to welcome their guests and to personally conduct tours around the club house. The club quarters were a revelation to most of the members of the run, and many expressions of admiration were heard, some of them so emphatic as to necessitate a dash in referring to them. If any one went away hungry or thirsty it was his own fault, for a splendid lunch was served in one of the upper rooms, and a waiter just managed to keep a large punch bowl filled by working hard all the time. The house committee was ably assisted in its efforts to entertain by a first-class orchestra. The club members treated the contestants with distinguished courtesy during the stay of the latter in Boston.

Notes of the Run.

Automobiles from thirty-five different manufacturers were entered in the run.

It was predicted at New Haven on the return that 85 per cent. of the cars would finish.

During the run, both out and in, no horses were seriously frightened, and only one runaway occurred. This was caused by a defective harness.

The contestants were accompanied by C. R. Mabley and wife, of New York, and Isaac W. England and party, of Passaic, N. J., both in gasoline touring cars.

Harry Fosdick led the procession into Boston. The club cars and those of outsiders, added to the vehicles of the contestants, made a procession of fully three hundred cars into the Hub.

Unofficial List of Winners.

MACHINES THAT FINISHED WITH PERFECT SCORES,

According to statements made by the observers to the club officials at the finish of the run on Wednesday evening, October 15.

No.	Class	NAME	CONTESTANT	No.	Class	NAME	CONTESTANT
1	C	Packard	Harland W. Whipple	31	B	Stevens-Duryea	O. P. Mestman
3	C	Packard	George L. Weiss	33	B	Grout	C. B. Grout
5	B	Prescott	H. M. Wells	42	C	Searchmont	L. J. Sackett
7	B	Lane	J. T. Roosa	47	B	Knoxmobile	Harry Knox
11	B	Haynes-Apperson	Frank Nutt	51	B	Stearns Str.	W. A. Sweet
24	B	White	P. H. Deming	61	B	Grout	Carl A. Grout
25	B	White	Windsor T. White	63	A	Oldsmobile	R. M. Owen
26	B	White	George S. Waite	68	B	Fredonia	C. P. Gaither
27	B	White, Del. Wagon	A. J. Scaife	70	B	Foster	Fred. J. Holley
30	B	Stevens-Duryea	J. F. Duryea	76	C	Searchmont	Raymond Green

OFFICIAL TIMES OF ARRIVAL AND DEPARTURE AT ALL CONTROLS ON THE INWARD RUN FROM BOSTON TO NEW YORK.

		Monday, October 13.				Tuesday, October 14.				Wednesday, October 15.			
		Boston Depart.	Worcester Arrive.	Worcester Depart.	Spring-field Arrive.	Spring-field Depart.	Hartford Arrive.	Hartford Depart.	New Haven Arrive.	New Haven Depart.	Norwalk Arrive.	Norwalk Depart.	New York Arrive.
1	Packard	8:35:00	11:37:00	12:56:15	5:02:45	9:01:45	10:46:15	1:15:45	4:09:45	9:07:15	11:23:45	1:02:30	4:37:45
2	Packard	8:21:15	11:38:15	12:59:15	4:44:15	9:10:30	11:01:30	1:13:45	4:18:00	9:02:15	11:30:15	1:06:00	4:14:00
3	Packard	8:08:30	11:17:15	12:46:45	4:26:30	9:10:45	10:59:45	1:15:30	4:15:45	9:04:15	11:30:15	1:07:15	4:15:00
4	Packard	8:11:00	11:20:15	12:47:15	4:30:15	9:11:15	11:01:45	1:15:30	4:25:45	9:02:45	12:21:00	1:16:30	4:22:45
5	Prescott	8:05:45	11:18:15	12:50:15	4:37:30	9:04:00	10:57:45	1:07:00	4:09:15	9:03:45	12:31:30	1:11:45	4:25:15
6	Foster	8:09:15	11:30:30	12:53:30	4:41:30	9:04:45	11:00:00	withdrew					
7	Lane	8:12:00	11:20:45	12:52:00	4:33:30	9:05:30	10:54:30	1:15:15	4:14:00	9:07:15	11:33:00	1:11:15	4:24:45
8	Lane	8:19:00	11:30:15	12:53:30	4:55:15	9:07:00	10:58:30	1:11:15	4:14:00	9:08:30	11:37:00	1:11:30	4:25:15
10	Haynes-Apperson	8:03:15	11:08:00	12:45:00	4:19:45	9:03:15	10:46:45	1:03:00	3:57:30	9:04:00	11:24:00	1:02:45	4:07:30
11	Haynes-Apperson	8:10:00	11:13:45	12:48:00	4:23:45	9:03:45	10:47:30	1:11:45	4:57:15	9:03:45	11:24:15	1:02:45	4:07:30
12	Haynes-Apperson	8:07:00	11:15:00	12:53:15	4:32:30	9:04:15	10:53:45	1:13:30	4:11:15	9:02:30	11:24:15	1:04:15	4:07:45
13	Autocar	8:18:00	11:27:00	12:13:30	4:33:00	9:03:00	10:54:00	1:16:30	4:13:00	9:06:00	11:35:00	1:10:15	4:46:30
14	Autocar	9:00:00	12:14:00	1:44:00									
15	Knickerbocker	8:14:30	11:21:00	12:58:30	4:35:45	9:10:15	10:59:15	1:11:00	4:10:30	9:01:00	11:22:00	1:01:00	4:07:00
16	Knickerbocker	8:01:00	1:11:00	2:32:00	6:47:00	9:09:15	10:58:00	1:10:30	4:10:30	9:01:00	11:22:00	1:01:00	4:07:00
17	Apperson Bros.	8:09:45	11:18:00	12:55:15	4:32:00	9:04:45	10:50:15	1:17:00	4:15:30	9:07:00	11:26:30	1:08:30	4:11:00
18	Brazier	8:14:45	1:52:30	3:08:00	6:45:00	9:11:00	10:58:45	1:10:45	4:16:00	9:05:45	11:33:15	1:09:45	4:12:30
19	Torbenesen	8:09:00	2:10:00	3:40:00	*	9:10:00	11:00:15	1:12:00	5:23:30	9:09:15	11:38:00	1:10:45	
20	Pierce	8:12:45	11:19:00	12:47:00	4:26:00	9:01:15	10:45:30	1:02:00	3:55:30	9:06:00	11:38:15	1:05:45	4:07:00
21	Darracq	8:39:00	11:41:15	12:56:00	4:41:45	9:04:45	10:50:30	1:08:30	4:04:30	9:04:45	11:24:45	1:04:30	4:06:30
23	Apperson Bros.	8:09:30	11:15:30	12:51:45	4:32:00	9:05:30	10:51:00	1:16:45	4:15:15	9:06:30	11:27:00	1:10:30	4:17:15
24	White	8:19:15	11:29:15	12:57:45	4:50:15	9:05:45	10:56:30	1:09:30	4:09:45	9:04:45	11:28:00	1:03:00	4:07:15
25	White	8:20:45	11:30:00	12:57:30	4:34:45	9:06:30	10:56:45	1:10:15	4:10:45	9:05:15	11:28:15	1:03:15	4:08:30
26	White	8:19:45	11:29:30	12:57:45	4:35:00	9:06:00	10:55:30	1:09:15	4:09:45	9:06:15	11:28:30	1:03:30	4:08:30
27	White Delivery	8:20:30	11:29:45	12:58:00	4:35:30	9:06:30	10:58:15	1:10:00	4:11:30	9:06:15	11:29:00	1:04:00	4:10:45
28	White Delivery	8:20:00	11:19:15	1:10:00	6:00:15	9:06:00	10:51:00	1:09:45	4:09:45	9:05:45	11:28:45	1:03:45	4:10:30
29	Riker	8:07:45	11:04:45	12:51:30	4:38:15	9:01:15	10:49:00	*	4:08:14	9:09:15	11:29:15	1:07:30	4:10:45
30	Stevens-Duryea	8:02:45	11:04:45	12:41:15	4:17:30	9:01:30	10:45:45	1:02:00	3:56:30	9:01:30	11:19:00	1:00:30	4:02:00
31	Stevens-Duryea	8:02:45	11:16:15	12:48:15	4:45:30	9:04:30	10:55:15	1:11:30	4:18:00	9:00:30	11:10:00	1:00:00	4:02:15
32	Rambler	8:06:00	11:17:15	12:51:15	4:31:15	9:03:00	10:48:00	1:08:45	4:05:30	9:01:15	11:27:30	1:08:15	4:11:00
33	Grout	8:04:15	11:20:30	12:48:45	4:41:30	9:02:15	10:54:15	1:05:30	4:05:45	9:07:00	11:37:00	1:12:15	4:24:30
34	Locomobile Racer	8:38:30	11:48:00	12:45:00	4:15:30	9:03:30	10:48:15	1:04:30	3:53:30	9:09:30	11:37:00	1:12:15	4:24:30
35	Locomobile	8:13:30	11:25:00	12:50:00	4:51:30	9:08:45	10:57:45	1:04:00	4:03:00	9:02:00	11:23:00	1:01:00	4:15:15
36	Locomobile	8:13:00	11:42:00	1:03:30	6:00:00	9:09:00	10:55:45	*	4:09:30	9:06:45	11:29:00	1:10:00	4:51:15
37	Elmore	8:02:30	11:05:00	12:42:30	4:23:45	9:02:00	10:48:30	1:04:15	3:58:30	9:01:45	11:22:30	1:01:30	4:02:30
38	Elmore	8:03:30	11:10:00	12:48:15	4:38:30	9:04:00	10:51:15	*	4:02:00	9:03:15	11:23:45	1:01:45	4:02:15
39	DeDion-Bouton	8:01:15	11:06:00	12:41:30	4:18:00	9:01:00	10:45:15	1:01:45	3:55:15	9:02:30	11:21:00	1:00:45	4:02:15
40	Autocar		11:14:30	12:44:15	4:38:30	9:06:15	10:53:15	1:10:45	4:07:30	9:05:30	11:27:15	1:07:00	
41	Oldsmobile	8:00:45	11:10:15	12:41:45	4:22:14	9:00:45	10:45:15	1:01:30	3:55:00	9:03:15	11:25:15	1:01:15	4:18:30
42	Searchmont	8:18:15	11:30:15	12:54:15	4:37:00	9:05:00	10:57:30	1:00:30	3:59:00	9:04:00	11:30:15	1:05:30	4:14:45
43	Packard	8:06:45	11:26:00	12:50:45	4:31:30	9:02:15	10:47:00	1:03:30	3:59:45	9:03:30	11:37:30		5:52:30
44	Darracq	8:08:45	11:13:00	12:43:45	4:17:45	9:01:00	10:44:30	1:01:45	3:55:00	9:00:00	11:12:15	1:00:00	4:02:15
45	Franklin	8:07:15	11:19:30	12:55:00	4:38:30	9:08:15	10:59:30	1:06:30	4:09:15	9:06:45	11:30:45	1:08:00	4:18:15
46	Knoxmobile	8:01:30	11:02:00	12:46:30	4:20:30	9:03:15	10:46:15	1:03:15	3:56:15	9:03:30	11:23:30	1:02:30	4:06:30
47	Knoxmobile	8:01:45	11:03:00	12:41:00	4:15:00	9:00:15	10:43:30	1:00:00	3:50:45	9:01:30	11:18:45	1:00:30	4:02:00
48	Knoxmobile	8:03:45	11:14:30	12:43:30	4:28:00	9:02:00	10:54:00	1:05:45	4:07:00	9:03:00	11:31:15	1:09:00	4:19:30
49	F. I. A. T.	8:02:00	11:09:30	12:41:15	4:15:30	9:00:15	10:43:45	1:05:15	3:51:45	9:00:30	11:18:30	1:00:45	Towed in
51	Stearns Steam	8:04:00	*	12:45:45	4:19:30	9:00:45	10:45:00	1:13:00	4:12:00	9:03:00	11:25:45	1:05:00	4:15:15
52	Winton	8:35:30	*		4:39:45	9:08:15	10:53:00	1:02:15	3:58:45	9:02:00	11:22:15	1:01:15	5:52:30
55	Long Distance	8:05:30	11:15:15	12:47:45	4:32:15	9:02:30	10:53:30	1:08:15	4:09:00	9:01:00	11:26:00	1:06:15	4:13:30
56	Long Distance	8:04:30	11:07:00	12:41:45	5:25:15	9:01:30	10:46:00	1:03:45	4:13:15	9:02:45	11:55:00	1:11:00	4:17:15
57	Pierce	8:03:00	12:52:45	1:01:00	4:32:45	9:01:45	10:50:00	1:06:00	4:04:00	9:06:30	11:35:15	1:09:30	4:15:30
58	Rambler	8:12:15	12:12:15	1:10:00	4:17:45	9:02:30	10:49:15	1:06:15	4:02:45	9:01:15	11:26:15	1:06:30	4:13:30
59	Winton	8:39:30	11:59:00	1:10:00	4:48:15	9:09:15	11:00:30	1:14:30	4:12:15	9:06:45	12:43:00	1:37:00	4:41:00
60	Grout	8:06:15	11:20:00	12:49:15	4:41:00	9:02:45	11:54:45	1:09:00	4:15:00	9:08:00	11:35:30	1:12:30	4:24:45
61	Grout	8:04:45	11:21:15	12:49:00	4:39:45	9:02:45	10:55:00	1:07:30	4:14:00	9:08:00	11:35:45	1:09:15	4:25:00
62	Toledo Gas	8:11:15	11:16:00	12:54:30	4:23:30	9:05:15	10:48:45	1:08:15	4:02:00	9:05:00	11:27:00	1:06:45	4:08:15
63	Oldsmobile	8:00:00	11:01:00	12:41:00	4:15:00	9:00:00	10:43:00	1:00:00	3:50:45	9:00:15	11:18:00	1:00:15	4:02:00
64	Oldsmobile	8:00:30	11:01:00	12:41:00	4:15:00	9:00:30	10:44:00	1:05:15	3:51:00	9:00:45	11:18:00	1:00:15	4:02:00
65	Automotor	8:37:30	11:54:00	12:59:45	4:39:30	9:11:30	10:59:00	1:15:00	4:12:30	9:09:00	11:30:00	1:01:15	4:09:15
66	Panhard	8:00:15	11:11:00	12:42:00	5:22:45	9:00:00	10:43:00	1:00:00	4:52:15	9:05:30	11:39:00	1:02:00	4:08:00
67	Searchmont	8:07:30	11:18:30	12:54:00	4:37:15	9:05:00	10:52:00	1:00:45	4:38:00	9:04:30	11:25:00	1:04:45	4:06:15
68	Fredonia	8:21:45	12:22:15	1:10:00	4:53:30	9:04:15	10:56:15	1:05:15	4:07:45	9:05:00	11:32:00	1:02:00	4:13:45
69	Fredonia	8:36:30	2:22:00	3:1:00									
70	Foster	8:08:15	11:21:15	12:50:30	5:18:30	9:07:30	10:57:15	1:02:30	4:01:00	9:01:45	11:22:45	1:01:45	4:04:00
71	DeDion-Bouton	8:06:30	11:09:00	12:43:00	4:17:30	9:00:30	10:44:45	1:01:30	Towed in	9:00:15	12:00:00	1:01:15	4:22:15
73	Foster	8:44:45	1:26:00	2:12:00	6:57:30	9:08:30	10:17:00	1:17:30	4:31:00	9:07:15	11:59:00	1:12:45	4:52:30
75	Rambler	8:05:00	12:04:00	12:58:45	4:48:30	9:03:30	10:49:30	1:12:15	4:09:15	9:05:15	11:30:45	1:08:45	4:09:00
76	Searchmont	8:22:30	11:34:00	12:55:45	4:42:00	9:04:30	10:51:45	1:01:30	4:04:45	9:04:30	11:32:00	1:07:45	4:18:45
77	Rambler	8:23:30	11:29:00	12:49:45	4:22:30	9:03:45	10:51:30	1:02:45	4:01:15	9:00:45	11:20:00	1:01:30	4:08:15
79	Oldsmobile	8:08:00	11:15:45	12:49:30	4:33:15		10:49:15	1:04:30	4:01:30	9:00:00	11:27:45		



VOL. VII.

NO. 7

Published Every Saturday
by**THE CLASS JOURNAL CO.**

395 BROADWAY NEW YORK CITY

Western Office:
356 Dearborn Street - - - - - Chicago, Ill.**SUBSCRIPTION:**United States, Canada and Mexico, One Year, \$2.00
Other Countries in Postal Union, - One Year, \$3.00To Subscribers—Do not send money by ordinary mail.
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To Advertisers—Copy or changes in orders for advertisements for the issue of the week following should reach us not later than Saturday.

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Entered at New York Post-office as second-class matter.

SATURDAY, OCTOBER 18, 1902

THE 500-MILE RELIABILITY CONTEST.

Ever since the trials held on May 30 and 31 by the Automobile Club of America, active preparatory work has been carried on for the 500-Mile Reliability Contest which was concluded this week. The selection of the route, the survey and map making, accurate measurement of distances; the formulation of rules and regulations; of entry blanks, their distribution; description of the route; placing of guide posts and signals over the entire distance; arrangements with hotels on the coupon system; appointment of observers; provision for gasoline and water supplies and garages at the controls; the proper organization of facilities for weighing, measuring and sealing the vehicles before the start, and the publication of an adequate and convenient program—all these tasks added to a voluminous correspondence with the entrants and the constant supplying of news matter to the press, have constituted an amount of painstaking labor the volume and exacting nature of which are not easily appreciated.

The results of the contest may be said, however, to have fully justified the amount of work and money expended for making it a successful and well-nigh complete demonstration of the status of automobilism in this country, and the Automobile Club of America is to be congratulated for the zeal and ability it has displayed. Hardly less credit is due the members of the automobile industry for their willing response to the club's invitation. Nearly all the well-known manufacturers were represented in the event, and a glance over the list of drivers of the contesting vehicles reveals an interesting change from the practice in previous contests. The names are in a gratifying number of in-

stances those of the manufacturers and designers, while formerly the driving was mostly entrusted to professional "chauffeurs."

Evidently a commendable degree of confidence has been established between the Club and the industry, so far as the management of contests is concerned. Herein lies no small accomplishment, when it is remembered that the Club is expected to provide a test by which the public at large will be able to discriminate between good, better and best in automobiles, while the manufacturers must insist that their performances shall not be belittled, as a whole, and especially that no one shall run the risk of being pilloried on account of, perhaps, unavoidable mishaps.

By steering a clever course between high scientific stringency, on one side, and the happy-go-lucky junketing of our first contests, on the other side, the Club has solved a delicate problem in a manner evincing tact and judgment. The same problem will undoubtedly require a new solution for each succeeding contest, but the fact has been established that long distance Reliability Trials can be managed so as to avoid the insidious and withal rather unjust, comparisons which, in Europe, and especially in England, have been the result of too great minuteness in rules and too much theory in execution.

As to what lessons the contest has taught for the benefit of the public, it is yet too early to speak, although it is a foregone conclusion that the high percentage of clean scores and of finishers, the ability to make important repairs with mere local assistance, repeatedly demonstrated en route, and the fact that serious failures in mechanism fell to the share of only those vehicles which were practically untried before this event will go far to convince everybody that automobilism has made great strides in advance since the New York-Rochester contest one year ago. A direct comparison between the two events can hardly be made, however, because the road and weather conditions last year were abnormally severe, while in the present instance they were all that could be expected.

That gasoline vehicles would predominate in numbers over steamers, in the proportion of 55 to 19, was generally expected, as it was commonly known that the popular demand has favored the internal combustion motor system, but to draw any strong inferences from this fact would not seem to be consistent with the accepted views according to which merits and demerits in automobile construction must for some time remain a matter to be decided by mechanical engineers rather than by the popular demands of the day.

From all sides flattering comment is received in regard to the military precision that was observed in the start of the vehicles, not only from New York, but from all the controls; the sensible

management of the garages in general, and the smoothness in the administration of all the details of the run.

The event having proved one of unusual interest, it may be hoped that the official facts and figures will be given to the world at large before the interest shall have waned. We suggest that the club officials complete their good work by having, in addition to the usual records, all weights and measures relating to the event, converted into the metric system of denominations, so that their significance may be readily understood and appreciated by the motorists of continental Europe.

THE CLUB IN WINTER.

When automobilism was still in its swaddling clothes the winters were seasons of blight to the sport and pastime, but with every succeeding year the period of inactivity has been contracted and today the majority of automobilists—at least the sturdy ones among them—keep their vehicles on the go all the year round, suffering only slight inconvenience from the rigors of sleet, snow and frozen zephyrs. But the public at large does not appreciate this pleasing change in the efficiency and comfort of motor vehicles at its full value, and it is perhaps incumbent upon the automobile clubs, as the bearers of the movement, to show by a special increase in their activity that they do not subscribe to any classification of the automobile as a bird of passage, but are fully determined to have it acknowledged as a fully domesticated beast of burden as well as a hardy instrument of sport and pleasure.

While it may be impracticable to accomplish this demonstration by a continuation of races or contests—though a winter contest has already been seriously considered—there are features in club life which can be cultivated with signal success during the severest weather and which may do much to keep the club members actively interested and the club purposes conspicuously before the public. Informal "smokers" with interchange of experiences and opinions as well as discussions of tours with lantern slide views, come distinctly in this line, and are not beyond the means and scope of any of our clubs. By opening the doors to outsiders on special occasions they may do much to advance the cause, and not least so in the less populous cities.

Much may be done for a suitable decoration of club rooms by establishing an exchange of photographs with members of other clubs. Something has already been done in this direction, and the results have been both instructive and gratifying and also pleasing to the casual visitor to the club rooms, who carries away with him an impression of interest and activity of, perhaps, far-reaching effect.

In keeping the social features of automobile clubs up to a high standard, a

great gain is undoubtedly effected for the furtherance of more serious work. The club members are kept in constant intercourse with each other, and the club, as such, is kept in touch with the community in which it is located. Whenever a question should arise affecting the interests of automobilists as a class, they would be ready to defend their cause with a united front against all oppression, and if recognized as a strong factor in the local social life, the chances of opposition at home are, of course, materially reduced.

Clubs whose ambition takes a deeply practical course might extend their winter work into many other suitable channels. They might encourage the purchase by members of closed automobile carriages especially intended for winter use. Recognizing that utility wagons must needs be operated during all seasons, they might make demonstrations of those points of superiority for winter work possessed by automobile delivery wagons and trucks over horse-drawn vehicles of the same character, selecting occasions when conditions of the roads and weather would make the demonstration convincing. An occasional club run under such conditions might also be worth the effort.

In regard to many, if not all, of the expedients here referred to, some action was taken last winter, now in one club and again in another. Perhaps it may be possible in the winter which is now fast approaching to have all clubs take up everything that has been successfully tried by any one of them, and there is beyond this room for intelligent effort in the direction of novel and interesting features.

Notes of the Reliability Run.

So many cars finished well in New York that at the club it was a matter of pleasant discussion whether or not the committee would be able to fill a score of awards with one President's cup.

A feeling of great cordiality between the contestants was manifested during the trip, and at almost every point the residents along the route showed a helpful disposition and extended every courtesy in their power.

The Harvard Automobile Station at Boston was easily able to accommodate the contestants, having ample room for the storage of all cars in a room by itself which was only accessible to contestants and observers.

H. S. Woodworth, of Rochester, with Percy Webb and F. G. Webb as guests, accompanied the run in his Panhard. Messrs. Scarritt, Hill and Chamberlin, of the Reliability Contest Committee, accompanied the run in Mr. Hill's Autocar, leaving the controls after the last car, arriving at the following control among the first vehicles. President Shattuck's car, noticeable for its top, was present during the run.

Haynes-Apperson's car, No. 12, broke the record for quick repairs on the run out, between New Haven and Hartford. A steering knuckle was broken and an axle bent, and the reach also broken. The car was towed, about three-quarters of a mile, to a blacksmith's shop where it was made ready for the road again in three and a half hours. The car came to grief making a quick turn in the sand, and the driver was thrown twenty feet; the observer escaped.

APPERSON BROS.' CAR.

One of the best cars in the run was Apperson Bros., No. 17, on which one of our representatives was official observer. The car is designed for endurance, speed and comfortable riding over average country roads.

It is one of their regular standard touring cars, weighing 2,500 pounds, and driven by a double cylinder, 16 horse power gasoline engine, with opposed cylinders mounted horizontally. The transmission, with the usual speeds and reverse, is specially fine, the second forward giving 12 miles an hour. This was often run continuously, the change from high speed being unnoticeable to the observer in the tonneau. The car is easily capable of the whole distance from New York to Boston in 12 hours, if the legal restraints permitted. Two cars were entered by Apperson Brothers, both making excellent runs. The observer was greatly impressed with the small amount of care required to keep the car in condition to run. On arrival at the garage the car was resupplied with gasoline and water, and in the morning five to ten minutes only were required for oiling before car was ready to start.

A slight leak in the water tank was repaired in Boston, the water pump was repacked, and the car arrived back in New York in perfect condition to run over the course again if needed. Mr. Brown, of Hartford, Conn., was in the car as a guest, and was so much pleased with its performance that he purchased it and will take the auto back to Hartford this week.

CLASSIFICATION OF CARS.

The classes into which the cars were divided were three in number, marked by the first three letters of the alphabet, which had the following significance: A—Cars weighing under 1,000 pounds, B—Cars weighing 1,000 to 2,000 pounds, and C—Cars weighing more than 2,000 pounds.

In Class A, the light cars have made a good record; the only steamers entered in this class were two Locomobiles, both of which arrived at New Haven on the return trip in good condition. The Class A gasoline cars included Pierce (2), Jeffery (1), Olds (4), and Foster (1). All of these were easily able to meet the conditions when carrying two persons, and most of them have clean scores.

In Class B, the Stearns cars appeared to be easily able to meet the conditions of the contest. The White steam cars, of

which five were entered, including two delivery wagons, have made a fine record. The Prescott, with only one car in the run, made a perfect score to New Haven, and others in the same class are the Grout, with three entries, and the Lane and Foster cars.

Gasoline cars coming under Class B formed a majority of all the vehicles entered in the run, the total of these cars being forty-four, with the following included: Haynes-Apperson (3), Autocar (3), Jeffery (4), Ward Leonard (2), Stevens-Duryea (2), U. S. Long Distance (2), Fredonia (2), Darracq (3), Elmore (2), Franklin (1), Knox (3), "Fiat" (1), Automotor (1), Richard (1), De Dion (1). The better grade of these cars have done fine work, and most of them have clean scores. Nearly all the mishaps suffered by this type of car have been purely accidental, but there have been occasional instances of failure through poor workmanship or construction—teaching valuable lessons.

Eighteen cars were entered in Class C, mostly tonneau styles, carrying two to six persons each. This type of car was at a disadvantage from the fact that the designed speed was usually anywhere from 20 to 40 miles an hour, and the contest limit of 14 miles made necessary frequent changes of speed to avoid collisions.

Foreign Notes of Interest.

The Touring Club of France is carrying out rapidly a very important work in marking the national roads. Metal signs of large dimensions are used, showing in plain characters the extreme terminals of the road, the nearest important places on each side of a given spot, and the distances. These signs are placed at junctions, cross-roads and all places where one would be in doubt as to the proper direction. The roads already completed are the Paris-Marseilles, Paris-Bordeaux, Paris-Dieppe, while the Paris-Cherbourg and the Paris-Le Havre are in course of completion. It is expected that the entire work will be finished next year.

The heavier class of commercial vehicles, powerful trucks capable of drawing one or more loaded trailers in addition to their own loads, have played an important part in the recent army maneuvers in Germany on the high plateaus between Posen and Frankfort-on-the-Oder. Nearly all the transportation service of commissary stores and ammunition has been carried on by this means.

The number of motor cars enrolled in the city of Paris and the department of the Seine on August 1 was 3,807. These, it must be noted, are of a speed of 30 kilometers, the slower vehicles not being compelled to register. The number of licenses issued up to the same date was 13,000.

WINTON'S NEW PLANT LAID OUT ON AN IMMENSE SCALE.

SHOWS MAGNITUDE OF TRADE.

New Cleveland Shops Located at Madison Avenue and Berea Road Fronting 1,723 Feet on the Lake Shore Tracks—Shop Facilities for Construction of Complete Vehicles and a Track for Trying Them Out—Details of Equipment.

Special Correspondence.

CLEVELAND, OHIO, Oct. 11.—The new plant of the Winton Motor Carriage Co. on Madison Avenue and Berea Road, this city, is an immense affair and is a good practical illustration of the present magnitude of the automobile industry. It is located on a level plot of twelve acres, facing 1,723 feet on the main line of the Lake Shore railroad, and with a switch running through the grounds and directly to the doors of the storage, shipping and boiler rooms, so that all shipping may be handled directly and but once. The plant itself consists of four one-story buildings, covering an area of about 100,000 square feet of space. They are of brick, with heavy foundations and especially constructed for the manufacture of motor vehicles. There are windows on all four sides of the buildings and the structural frame work is raised in the center to provide windows and skylights to light from above. The result is as nearly perfection as can be secured in this respect and even on dark days the light will be sufficient for the workmen in almost any corner of the factory.

BUILDINGS AND EQUIPMENTS.

The first building on the left of the main entrance and, perhaps, the most interesting department of the entire plant, is the machine shop, which is 300 by 100 feet in area. When your correspondent visited the plant only a portion of the machinery in this department had been put in place, but what had been set up was sufficient to indicate the magnitude of the work that can be turned out when it is completed. On the right as one enters is the machine shop proper and, to show what it contains, a few of the machines may be named: Eighteen screw machines, eight of which are new; thirty lathes, of which twelve or fourteen are new machines; five Brown-Sharp automatic gear cutters, two Becker-Brainard vertical millers, four radial drill presses and one Landes grinder. Besides these, there are many other machines common to all machine shops. These, with some other machine tools which have been ordered, will fill the entire portion of the building to the right of the center space.

Power for this department is furnished by two Winton double-cylinder gas engines, each of 60 horse power. One of them will be operated with gas produced on the premises, and the other with city gas. The engines are situated at opposite

ends of the building and are connected with a shaft from which all the machines are run by belts.

FACILITIES FOR ASSEMBLING AUTOS.

The assembling will be done on the south side of this building, where benches and other conveniences have been arranged for the workmen. One piece of machinery of interest on this side of the building is a wheel setting device. The erecting shop occupies a space 40 by 100 feet, and the pits are situated to the south side of the space. To aid in the work of assembling machines, two two-ton traveling cranes, with trackage from one end of the building to the other, have been installed. While they cannot pass each other, they have a shifting device, so that in case both are in use at the same time, the burdens may be shifted from one to the other in a few seconds.

On the north side of the erecting space there will be room to line the machines up the entire length of the building, except what must be used for the transfer of material and parts from one portion of the shop to the other. Jacob Weidig, the superintendent of this department, has his office just to the left of the entrance to this building.

SPECIAL EXPERIMENTAL WORK.

From the standpoint of the inventor, perhaps, the building just to the east of the machine shop would prove the more interesting of the three, for it is here that the ideas and plans formulated by Alexander Winton are worked out by the staff of designers, draftsmen, chemists and electricians. Just to the right of the large door as one enters the building from the front walk is the "room of mystery," which is provided with apparatus for experimental work. It is here that improvements in the engine and working parts will be planned and prepared for the patent office. It must, of necessity, be private, and the merely curious will be excluded. The pattern storage room is in a balcony over this room and over the entrance to the building. From this one enters the spacious drafting rooms, which are provided with all conveniences for making drawings. A dark room for photographic work and blue prints is located just off the main room, and the head draftsman has a private office, which also communicates with the main workroom. A fire proof vault is provided for the storage of drawings and valuable plans.

GENERAL OFFICES OF THE COMPANY.

On the ground floor beneath these rooms are located the general offices of the company. The first room entered is that of the purchasing and publicity departments, but later the latter will be moved to the new building now in course of erection down town. The counting room is located back of these departments and off this Mr. Winton has a snug private office. All are fitted with handsome desks

and furnishings, and with telephone and telegraph apparatus. A telegraph operator will be in charge of the instruments and all business requiring haste will be attended to without the delay of having telegrams sent from the city offices. Both the Western Union and Postal wires have been installed.

To the left of the entrance to the building is the storage room, a large department, in which all surplus goods and supplies will be kept until needed. Immediately adjoining this is the finishing department where the upholstering work and everything of this kind is done. It is provided with separate working departments for each employee and power for the machines where needed. To the rear of this department and on the same side is what is known as the rubbing department, where the priming is rubbed down. It has a brick floor arranged for readily draining water. On the right of the building, and occupying a space 100 by 300 feet, is the paint and trimming department. This is separated from the other portion of the room by partitions and the various subdivisions of the department itself are partitioned off, in order to escape the dust and dirt which naturally arises in a shop.

WOOD WORKING DEPARTMENT.

In the rear of this building and separated from the other portion by a heavy brick partition, is the carpenter shop, 100 by 100 feet in area. The machinery equipment, consisting of planers, mortising machines, bending machines, sandpaper machines and other apparatus of this kind, is situated on the right side of the room as one enters, and to the left is the space where the hand work is carried on. There is also a steaming room on this side, which is an adjunct to the bending process. The greater part of the woodwork will be made by hand, however, the parts being bent to place on the framework they are to occupy. A 60 horse power Winton engine furnishes the power for this department. This building in its entirety is 400 by 100 feet in area, and is the only one that has a second floor or balcony. There is a very large open space down the center of the building which is not occupied by any of the departments, but which will be used to facilitate the work in moving the automobiles, fitting on the woodwork and finishing them up.

POWER PLANT AND FOUNDRY.

A third building, situated just north of the machine shop, contains the boiler room, the lighting plant and the foundry. It is about 80 feet wide and 300 feet long. The boiler room is situated just to the left of the entrance from the east end. It contains two boilers which are used for heating the entire plant and the water pumps which supply various portions of the building. To the right is the electric light plant, consisting of two generators,

driven by two Winton double-cylinder gas engines of 60 horse power each. A third engine of like capacity in the same room drives a blower which supplies pressure for the gas plant, located just to the east of this building and which supplies the Winton engines used in the plant. There is also a small engine in the room, used for starting the gasoline engines.

To the rear of these departments is the sheet metal shop, which is supplied with all the machinery and equipment necessary for the proper working of the metal. Passing through a door, the next and last department is the foundry. The forge shop comes first and the blooming shop is in the rear of the building. When the writer visited the plant, not much had been done in the way of preparing this department for operation, except laying the brick floors and setting the foundations for the forge hammers. When completed, it will be fully equipped with the latest machinery.

The fourth building is a small brick to the east of the boiler house. It houses the apparatus for generating gas from gasoline, which operates the shop engines. This plant is complete in every respect and has sufficient capacity to meet the needs of the factory for years to come.

TRACK FOR TESTING MACHINES.

A track has been built around the plant for the purpose of testing the machines. It is half a mile in length and has a foundation of stone and cinders. A top finish of slag and trap rock will be put on. The track is not altogether level, but follows the natural lay of the ground. This will serve better for the purpose than if it had been leveled and prepared as a race track usually is.

Fire protection for the plant has been well thought out. A system of water pipes extend over the buildings and at intervals there are coils of fire hose. The pressure is good and there is little danger from that source during the time the workmen are in the shops. A watchman, with a time checking system, is employed at night and on Sunday, so that the safety of the plant is well provided for.

Automobile Service.

A new company has been organized by leading citizens of Jonesboro, Ark., for the purpose of establishing an automobile passenger and merchandise service to all parts of the city and between Jonesboro and Nettleton, the junction point of the Iron Mountain and Frisco railroads. The town has no street car system, and this is expected to fill the vacancy. The company is organized with \$10,000 capital, all subscribed, and is to install at the outset three gasoline coaches with a capacity of twelve passengers each. In addition, the company will operate one freight vehicle. This is the first attempt of the kind in Arkansas.

CENTURY GASOLINE AUTOMOBILE.

Van Wagoner of Syracuse Gets Out a New Machine
—Other Local News.

Special Correspondence.

SYRACUSE, N. Y., Oct. 13.—The first gasoline vehicle produced by the Century Motor Vehicle Company is a decided success. An illustration of the machine accompanies this description. William Van Wagoner, the general manager and engineer of the company, has been experimenting for several months upon a gasoline vehicle with this result. Every part is built at the Century factory. This is the first of a large number of "Tourists" which it is intended to turn out. It is a 7 horse power car and developed 8.1-2 on the brake test. The machine will make 22 miles on the high speed. It is equipped with 28-inch artillery wheels and 3-inch detachable tires. One lever con-

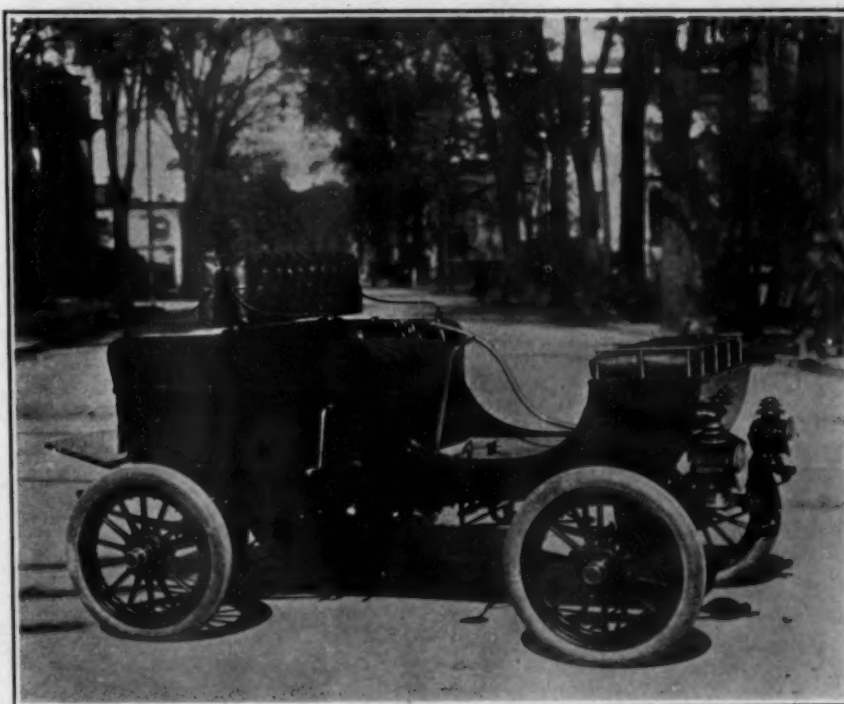
in the building by December 1. Beginning with next month, the output of the machines will be increased and they will be made in regular lots. C. A. Benjamin has entered upon his duties as sales manager and is formulating his policy to market the machines. In the new factory Mr. Benjamin will have a show room and sales room. He says the company expects to build 500 machines during the coming year.

PACKARD FACTORY PURCHASE.

Detroit Capital Brought into the Warren, O. Plant—
Local Trade Items of Interest.

Special Correspondence.

CLEVELAND, O., Oct. 13.—The Detroit men interested in the purchase of the plant and business of the Ohio Automobile Co., at Warren, this State, are Russell A. Alger, Jr., Fred M. Alger, John S.



NEW TOURIST GASOLINE CAR DESIGNED BY WILLIAM VAN WAGONER.

trols two speeds forward and one reverse, with center steer. It is finished in dark automobile red with the panel work in lighter red, and trimmed with a still lighter color. It has a gasoline capacity of 8 gallons and water capacity of 5 gallons, to carry it fifty miles. It will accommodate from two to six persons, the back seat being easily removed.

Tests of the engine showed it to be very efficient. The company has received orders for a large number of these vehicles and patents covering all the new features have been applied for by Mr. Van Wagoner.

NEW FRANKLIN FACTORY.

Work on the new factory of the H. H. Franklin Mfg. Co. is progressing satisfactorily and the company expects to be

Newberry, Truman Newberry, H. B. Joy, R. P. Joy, Charles Ducharme, D. M. Ferry, Jr., William C. McMillan, Phillip H. McMillan and Joseph Boyer. The Packards, who have operated the factory at Warren, will retain an interest in the company. A board of directors has been chosen from among the men named and including the Messrs. Packard, but officers have not yet been elected.

A dispatch to the local papers from Wilmington, Del., is to the effect that the American Motor Carriage Co., of Cleveland, has been incorporated there, with an authorized capital stock of half a million dollars, by Frank H. Ginn and others. Mr. Ginn is an attorney in this city and the others named are employed about his office. He would not give out any in-

formation in regard to the company or who is interested in it, but it is supposed that he represents other local capitalists. The incorporation papers allow the construction of any kind of a machine.

The Cleveland Steel Castings Co., of this city, has doubled its capital stock and will increase the capacity of the plant at least 150 per cent. A large addition will be built to the factory building and a new open-hearth furnace is now being built.

Henry Bevington, a mail carrier at East Liverpool, has purchased an automobile to be used in delivering and collecting mail in that town. While he purchased it with his own money, he expects the government to help him out on the payment of the bill.

HOFFMAN COMPANY CHANGES.

Reorganization Effected for Purposes of Trade Expansion—New Machinery Installed.

Special Correspondence.

COLUMBUS, OHIO, Oct. 11.—A considerable change has taken place in the personnel of the Hoffman Automobile Manufacturing Co., of this city, so much so in fact, that it may be said that the company has been entirely reorganized. A number of new names appear in the roll of stockholders and new officers have been elected. With the addition of new capital and new blood, it is the intention to expand the business and make machines on a larger scale than before. The factory, at the corner of Lake and Marquette Streets, has been fitted out with new machinery and is in condition to turn out the best quality of work. It is the intention of the management to employ about 125 men all through the winter and make up machines for the spring market.

BOARD OF DIRECTORS.

What is really the new company has been organized with the following board of directors: Daniel Shurmer, T. F. Newman, A. D. McLachlan, L. E. Hoffman, A. T. Hatch, F. S. Masten and E. D. Shurmer. The officers are: President, E. D. Shurmer; Vice-President and General Manager, L. E. Hoffman; Secretary, T. F. Newman; Treasurer, A. D. McLachlan. Mr. Newman is president of the Great Lakes Towing Co. and general manager of the Cleveland & Buffalo Transit Co., while Mr. Shurmer is assistant general manager of the same company. Mr. McLachlan has also been interested in the lake trade, having been purser for many years on passenger steamers. Mr. Hoffman was the originator of the company and was formerly at the head of the Hoffman Bicycle Company.

The company manufactures a steam machine with a flash boiler. An automatic pump is used and the feed needs practically no attention from the driver. It is said to be an excellent hill climber and to be very economical on fuel. A gasoline machine will also be manufactured, but plans for this have not been announced.

TRADE CONDITIONS IN BUFFALO.

Machines Sales Reported to Be Brisk—Buffalo Auto Club Planning New House.

BUFFALO, N. Y., Oct. 13.—In no city in the country is the automobile trade in a more flourishing condition than in Buffalo to-day. This year has been a remarkable one for the number of auto machines put out by the local manufacturers and also for the number of machines sold by the dealers.

David Chambers McCan has just opened a spacious and handsomely equipped automobile show room at Nos. 58 and 60 Broadway. In connection with his establishment there is a repair shop and charging room. New machinery has been installed and more has been ordered. The present plans of Mr. McCan include the cleaning, repairing, charging and storing of automobiles. A little later on he intends to begin the manufacture of machines. One of the features of the establishment will be an automobile ambulance which will make runs for wrecked and disabled machines and take them to the shop, which is open days, nights and Sundays.

INCREASE OF CAPITAL STOCK.

The capital stock of the E. R. Thomas Motor Co., manufacturers of automobile and motor cycles, has been increased from \$100,000 to \$500,000, of which \$385,000 is paid in. The firm has increased the floor space in its Niagara Street works from 25,000 to 40,000 square feet, and E. R. Thomas, president of the firm, informs your correspondent that negotiations are now on for a still further enlargement of the plant. A lot of new machinery has just been installed. The Thomas Motor Co. has applied for large space at the automobile shows in New York and Chicago, at both of which it intends to exhibit a new line of automobiles in addition to the present machines.

PHILADELPHIA SPEED ORDINANCE.

All Road Users Co-operate to Secure Passage of Equitable Speed Regulations.

Special Correspondence.

PHILADELPHIA, PA., Oct. 11.—The combination committee of automobilists, wheelmen, horsemen and electric and steam railway men formed with a view of formulating an ordinance governing the operation of all kinds of vehicles in the city limits, held its first meeting at the Art Club Monday night. It developed that the municipal statute books at present contain no less than 13 separate ordinances having to do with the operation and defining the rights of as many different classes of vehicles. The framers of the new law have incorporated into one ordinance all the salient features of these different laws, thus enabling the owner of any sort of vehicle to understand his rights and those of owners of all other forms of wheeled conveyances.

The automobile section of the new combination ordinance will limit the speed to 10 miles an hour in the city limits, and provides for a fine of \$25 for the first infraction, with the revocation of the owner's license for a period of three months for the second offense.

The Automobile Club of Philadelphia, which organization is leading the movement, was represented by Captain John S. Muckle and Henry G. Morris. C. T. Harris, a business man, and J. Fred Hartman, a young lawyer, both of the Century Wheelmen, were present to look after the cyclers' interests, while the Hon. Wayne MacVeagh, who had been instrumental in drafting many of the present ordinances, unofficially represented the steam and electric railway companies.

The new ordinance, after some slight changes, will be presented to councils at the next session.

Buffalo Ordinance Amendment.

The Buffalo Automobile Club and every owner of an auto in Buffalo is interesting himself in a movement to have the Common Council of the city pass an ordinance allowing automobiles to be run at a greater speed than at present. Eight miles an hour is the fastest time a machine may make, if the ordinances of the city be obeyed. Owners of autos think that on certain streets they should be allowed greater speed and they have appealed to the Common Council to grant them that privilege.

Automobiles at Mechanics' Fair.

BOSTON, Mass., Oct. 10.—One floor of the large Mechanics' Hall in which the Mechanics' Fair, that opened on September 22, is being held, is devoted to motor vehicles and automobile appurtenances. Many of the leading vehicles are being exhibited there and this section of the Fair is proving its best drawing card. Among those concerns that have taken space and are making displays are the Automobile Headquarters, Crest Mfg. Co. A. J. Coburn & Co., Columbus Automobile Exchange, Kenneth A. Skinner, International Motor Car Co., Grout Bros., E. H. Corson, the Locomobile Co., and the Electric Vehicle Co.

The fair will continue until about November 5, during which time special excursions at reduced rates will be run from all of the New England States, the management having assigned one week for each state. The fair is held once in four years. It is being largely attended this year and the exhibits eclipse all previous efforts.

The Columbus Motor Vehicle Co., incorporated in Delaware, with an authorized capital stock of \$50,000, has been admitted to Ohio to have its principal office in Columbus. The officers are: President, G. W. Groff; secretary, C. W. Groff; treasurer, Yeatman Wardlow, and general manager, J. T. Runkle, all of Columbus.

BUSINESS NOTES.

INCREASE IN OLDSMOBILE OUTPUT.—The output of Oldsmobiles at the Detroit plant of the Olds Motor Works, which is now 750 per month, is to be increased to 1,250 a month.

PRESCOTT AGENCY IN HARTFORD.—Capt. A. S. Miner, who conducts an automobile station on Allyn Street, in Hartford, Conn., has taken the agency for the Prescott steam carriages, made by the Prescott Automobile Co. in Passaic, N. J.

AUTOMOBILE CLOTHING.—The large retail clothing house of the Macular-Parker Co., at 400 Washington Street, Boston, Mass., has just opened a special department for the sale of automobile clothing. New French-American styles are being shown in automobile coats (cloth and leather), vests, leggings, trousers, knickerbockers, caps, etc. A complete line of everything in the automobile apparel line is carried.

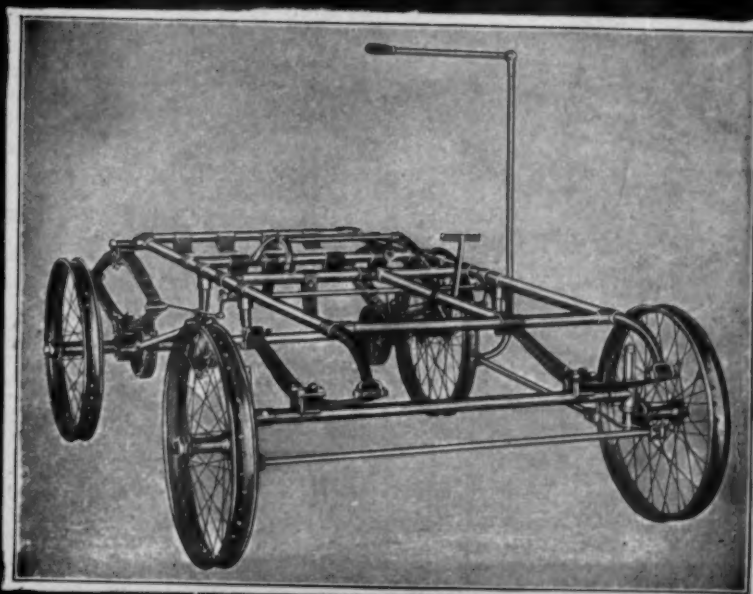
NEW DRAPER ROBE.—An automobile robe that is waterproof and windproof is made by the Draper Bros. Co., of Canton, Mass. The fabric of which this robe is made consists of two wool fleeces cemented together, under heavy pressure, by a layer of pure rubber, which renders it impervious to wind, cold, rain and dust, thus making it peculiarly adapted to our changeable climate, and giving it the qualifications of a fur robe without being so expensive nor so bulky. This robe is made 60 by 68 inches, being extra large, and finished all around with felt binding. There are three colors; one black on one side and dark green on the other, one black and mouse color and the third green and brown.

CROWN STEEL CASTINGS.—The crown steel castings made by the Whiteley Steel Co., of Muncie, Ind., are produced from special brands of imported irons, made expressly for the company and treated and purified in the furnace by the Whiteley process. By this process clear, solid, homogeneous steel castings are produced in pattern form of great strength and stiffness in proportion to the weight. They are specially adapted for use in the manufacture of automobiles, bicycles, internal combustion engines, and for all purposes where castings of unusual strength and stiffness in proportion to weight are required. These castings are made substantially true to pattern in the form required, leaving only sufficient surplus stock for machining, and are nicely finished with a smooth surface. The density of the metal makes it susceptible of receiving a very high polish. The company is prepared to make special quotations for castings made for experimental work, from single patterns or in small quantities.

FIRESTONE SIDE-WIRE TIRES.—A solid rubber tire with an improved method of fastening to the rim is being introduced by the Firestone Tire & Rubber Co., which has a factory in Akron, Ohio. This tire is constructed with metal cross bars inserted laterally every three-quarters of an inch close to the base and vulcanized in the rubber. The tire having been seated in the metal channel on the wheel, it is held firmly in place by means of side wires resting upon the shoulder formed by the ends of these cross bars. The wires are held against slipping off by pressure of the sides of the channel rings. This construction prevents the possibility of the retaining wires cutting through the rubber and also leaves the corner of the tire solid, preventing the rupturing of the rubber by side strains. Another advantage is that the wires prevent the working of sand and gravel between the tire and the channel, so that the channel is left in perfect condition for new tires when the old ones have worn out. In molding the Firestone tire, a coil mold of small diameter is used so that when fitted to the wheel the compression is brought on the wearing surface, making it to some degree self-healing and causing the tire to cling closely to the channel.

HERCULES RUNNING GEARS FOR ELECTRIC AND GASOLINE VEHICLES

There are no weak spots in these gears.
Don't confound them with gears which have
been hastily constructed to meet an early
demand from automobile makers.



We also solicit orders for parts of these gears.
Their design is original and the construction is sound. Prices and particulars of construction sent upon application.

FEDERAL MANUFACTURING COMPANY
SMITH STAMPINGS FACTORY
Milwaukee Wisconsin

STORAGE, REPAIR AND SUPPLY STATIONS

CONNECTICUT

SPEED—Outside city limits, 15 m.; inside, 12 m.; reduce at crossings; penalty for violation, not more than \$200. **HORNS or GONGS**—Not required by letter of law. **LAMPS**—Required on all rubber-tired vehicles; must be lighted from 1 hour after sunset to 1 hour before sunrise; penalty, \$5. If lights go out, operator "may proceed at 6 m. and give audible signal as often as 500 ft. are passed over."

HARTFORD

304 ALLYN ST. Phone 219-2
S. A. Miner. Phone Will Bring Our Repair Car Anywhere. Storing, Repairing, Charging, Gasoline. Always open.

43 WELLS ST. Phone 165
Hartford Automobile Station. Open Day and Night. Storing, Repairing, Charging, Gasoline, All Supplies. Oldest, Largest and Best.

NEW HAVEN

SPEED, ETC.—See state law. **PARKS**—Not allowed in some. **HORNS or BELLS**—Not required by letter of law.

105 GOFFE ST. Telephone 416-3
H. C. Holcomb. Storage, Repairing, Supplies. Automobiles Exchanged, Bought and Sold. We can sell your Auto.

532 STATE STREET. Phone 1412-12
Reichert's Auto. Station. Storing, Repairing, Charging, Supplies. Agent for Winton U. S. Long Distance Mobile.

DIST. OF COLUMBIA

WASHINGTON

SPEED—Outside city limits, 15 m.; off car-line streets, 12 m.; on intersecting car-line streets, 6 m. **LICENSE**—Required; fee, \$3; penalty, for operating steam vehicles without permit, \$1 to \$40.

1124 CONN. AVE., N.W. Phone Main 3027.
The National Capital Automobile Co. Agents for the Oldsmobile, Autocar and Packard. Storage, Repair and Supply Station.

ILLINOIS

CHICAGO

SPEED—Everywhere in town, 8 m. **BELLS**—Required, to be sounded at street crossings, etc. **WHISTLES and HORNS**—Prohibited. **LAMPS**—Required; must be lighted between dusk and dawn. **LICENSE**—Operators required to have license; fee, first year, \$3; thereafter, \$1. **NUMBERS or INITIALS**—Not required. **BRAKES**—Two sets required, one independent of driving gear. **SPECIAL**—No machinery may be left running when vehicle is standing in street with no one in charge.

5311-13 COTTAGE GROVE AVE. Phone Drexel 9363
C. A. Coey & Co., Agents for Woodruff Automobiles. Storing, Repairing, Renting and Supplies.

4 CALHOUN PLACE, near Dearborn. Tel. Central 4334
A. J. Millman. Storing, Repairing, Remodeling and Supplies.

285 N. STATE STREET. Telephone North 1430
Chicago Automobile Repository Co. Storage, Repairing, Remodeling and Supplies.

305 E. SUPERIOR STREET, Rear. Tel. North 1522
North Division Auto. Co. Automobiles Sold, Repaired, Charged and Stored.

12 PLYMOUTH PLACE. Phone Jackson 393
S. S. Williams. Special Machine Work. Gasoline Engines, Automobile Repairing.

VAN BUREN and OAKLEY BLVD. Phone West 252
Hagmann & Hamerly. Storage, Repairing, Remodeling. Agents Remington.

INDIANA

TERRE HAUTE, IND.

25 S. SEVENTH ST. Phone 7522
A. Chaney & Bro. Agents for Mobile, Steam and Waverly Electric. Storage, Repairing and Supplies.

IOWA

CEDAR RAPIDS

CEDAR RAPIDS SUPPLY CO.
J. C. Pickering, Pres. and Treas. General Storage and Supply Station. Agents for Rambler Gasoline, Toledo Steam and Waverly Electric Machines.

MASSACHUSETTS

SPEED—Outside city limits, fire district or thickly settled part of a town, 15 m.; inside such limits, 10 m.; approaching horses, reduce speed if animal shows fright and stop on signal of driver; reduce at crossings. **PENALTY**—Fine not exceeding \$200, or imprisonment not exceeding 10 days, or both.

BOSTON

SPEED—In city streets, 10 m.; in parks, 8 m.; outside city, 15 m. **LAMPS**—Three required. **PARKS**—Permit required from Park Department.

43 AND 45 COLUMBUS AVENUE
G. T. Gould, Boston Agency for the U. S. Long Distance Car.

147-153 COLUMBUS AVENUE
Columbus Automobile Exchange—A. J. Coburn & Co. Automobiles and Motor Cycles. Sole Agents for Orient, Elmore, Crestmobile, French Darracq Cars.

147-153 COLUMBUS AVENUE. Phone 388-2 Tremont
Columbus Automobile Exchange, New England Agents for Steam and Gasoline Automobiles. Storage, Repairing, Supplies.

Entrances Clarendon & Stanhope Sts. Tel. 251-97rem't
Back Bay Hydro-Carbon Repair Co. Gasoline Car Repairing a Specialty. All Work Done by Experts. First-class Storage Station.

66-68 STANHOPE STREET. Telephone 211 Tremont
Automobile Headquarters. Eastern Agts. for Knox, St. Louis, Gasmobile, Stearns, Pierce Motorettes. Also French and American Touring Cars. Open night and day the year 'round.

TREMONT and BERKLEY STS. Phone 1097 Tremont
Boston Salesrooms, Odd Fellows Building. "White Steamers." Stanhopes, Phaetons and Touring Cars. First-class Storage and Repair Stations.

CAMBRIDGE

424 MASS. AVE. Phone 142 Cambridge
Crest Mfg. Co. Repairing, All Supplies. Expert Mechanics and Electricians Furnished. Makers of Crestmobile; \$600. Crest Gasoline Motors, Collis and Parts.

8-10 PALMER STREET. 72-2 Cambridge
Harvard Automobile Co. Storing, Charging, Repairing, Building. Always Open.

SALEM

COR. DODGE AND LAFAYETTE near Depot.
Phone—Day, 438-4; Night, 108-4.
Repairing, Storing, Gasoline. All Supplies. Zina Goodell Mfg. Auto Parts and Machines to Order.

SPRINGFIELD

SPEED—State law applies. Reduce at street intersections. **LAMPS**—Required 1 h. after sunset; not enforced. **ALARM**—Required to be sounded as necessary. **PARKS**—Permit required for Forest Park; furnished free; rules accompany permit. No registration.

36-38 DWIGHT ST. Phone 869-12
Automobile Headquarters. J. E. Cowan, Mgr. Storing, Repairing, Charging, Supplies.

TAUNTON

4-5 POST-OFFICE SQUARE. Phone 209-3
Repairing, Gasoline, Water and Supplies. Robertson Auto Station.

WALTHAM

136 NEWTON ST. Phone 255-3 Waltham
Repairing, Storing, Gasoline, Supplies. Waltham Automobile Co. Mfg. of Piper Burners and Steam Automobiles.

WORCESTER

SPEED—10 m. **GONG or HORN**—Required. State law applies.

43 FOSTER, corner COMMERCIAL. Phone 659-4
Worcester Automobile Station, No. 1, Agents for Packard, Oldsmobile, Autocar and Rambler. Storing, Charging, Repairing, Supplies. Always open.

671-673 MAIN ST. Phone 1550
Robinson Automobile Station, Agents for U. S. Long Distance, White, Locomobile, Waverly. Storing, Charging, Repairing, Supplies.

NEW JERSEY

ATLANTIC CITY

1003 ATLANTIC AVE. Phone, Local 677, L-Distance 63A
J. C. W. Parsons, Agent for Locomobile and Electric Automobiles. Storing, Repairing, Gasoline and Supplies. Open always.

12 SO. MARYLAND AVE. Phone 544XBell
H. W. Cochran, Agent for Electric Vehicle Co. Charging, Storing, Repairing, Gasoline, Supplies.

NEWARK

SPEED—In Newark, 8 m.; outside Newark, in Essex County, 15 m.; rounding corners, 4 m. **HORN or BELL**—Required to be sounded 100 ft. from other vehicles. **LAMPS**—One required, to be lighted 1 hour after sunset. **LICENSE**—Required; fee, 50 cents. **INITIALS**—Required on vehicle.

MECHANIC STREET, 27. Phone 3071 Newark
W. B. Dodge. Agent Electric Vehicle Co. Charging, Repairing, Storing and Supplies.

PATERSON

SPEED—No regulation. **HORNS or GONGS**—Some alarm required. **LAMPS**—Required between sunset and sunrise.

450 BROADWAY. Telephone 243
F. W. Stockbridge, Automobile Headquarters. Agent for Imported French Darracqs, Oldsmobiles, U. S. Long Distance, Prescotts, Locomobiles, Waverlys. Storing, Charging, Repairing and Supplies.

NEW YORK

COCKS LAW—SPEED—Outside corporate limits, 20 m.; on bridges, 4 m.; inside corporate limits, 8 m., except where higher speed is permitted by local ordinance. **PENALTY**—A fine not exceeding \$50, or imprisonment not exceeding 6 mos., or both. **HIGHWAY LAW** (Doughty)—**SPEED**—Outside built-up parts of towns and villages, 15 m.; in built-up sections of towns, 8 m. Must stop on signal of driver to let reactive horses pass. **REGISTRATION**—Owner must obtain certificate from Secretary of State within 10 days after purchasing vehicle; fee, \$1. **INITIALS**—Required to be fixed to back of vehicle and must be 3 ins. high and 1/4 in. wide. **LAMPS**—Two required, showing white light in front; also red light visible behind; must be lighted between from 1 hour after sunset to 1 hour before sunrise. **BELL or HORN**—One or other required. **BRAKES**—Required to be good and efficient; penalty, fine not exceeding \$25. **LOCAL ORDINANCES**—The state road law prohibits local town and park boards from excluding automobiles and bicycles from open public highways; from placing lower speed limits than 8 m. and 15 m. in unbuilt-up parts of towns, and from requiring license or permit except from owners of public vehicles.

ALBANY.

SPEED, LIGHTS, ALARM, INITIALS, ETC.—State law applies. **BRIDGE TOLL**—Single seat, 10 cents; double seat, 15 cents.

97-99-101 CENTRAL AVENUE. Phone 1509F L. Dis.
Automobile Storage & Trading Co., General Agency for Automobiles. Storage, Supplies, Repairs. Competent Attendants.

167 NORTH PEARL STREET. Long Distance 967
Albany Automobile Works. Motor Vehicles of all Types Stored and Repaired. Machine Shop Attached. Charges Moderate.

255 SHERMAN STREET. Phone 257F West
C. F. Weeber Mfg. Works. The Largest and Best Equipped Automobile Repair Shop in the city. Mfr. of Weeber Muffler.

AMSTERDAM

8 DIVISION ST. Bell Phone 260
Gode & Brown. Agents for Locomobile and Motor Cycles. Storage, Cleaning, Supplies. Up-to-date Repair Shop. Always Open.

BROOKLYN

712 BEDFORD AVE. Phone 537 Williamsburg
Lincoln C. Cocheu. Charging, Storage, Repairs. Batteries a specialty.

752 BEDFORD AVE. Phone 2356A Williamsburg
J. W. Mears, Exclusive Agency U. S. Long Distance Car. Automobiles Stored, Repaired, Sold and Exchanged.

1148 BEDFORD AVE. Telephone 2422 Bedford
Arthur R. Townsend. Agent for the Waverly Electric, Toledo Steam, Toledo Gasoline Car, Knox Gasmobile. Charging, Storing, Repairing, Supplies.

10 CLINTON ST., near Bridge. Phone 1225 Main
Maltby Mfg. Co., Agents for Mobile, Olds, National Electric. Storage, Repairs, Batteries Charged, All Supplies.

342 FLATBUSH AVE., near Eighth. Phone 1681 Main International Motor Car Co. Charging, Storage, Repairing, Supplies. Open day and night.
473 FLATBUSH AVE. Phone 616 Flatbush Ave. Alex. Schwalbach. Agent for All Popular Makes. Motor Cycles and Their Repairs a Specialty. Practical Repairer of Gasoline Automobiles. Carriage Tires Repaired and Replaced. Bicycles. Long Island Agent for the Racycle.

1239-43 FULTON ST., nr Bedford Av. Phone Bedford 705 Brooklyn Automobile Co., Agents Haynes-Ap-person, Oldsmobile, Locomobile, Charging, Repairing, Supplies.

1241 FULTON ST. Phone 705 Bedford Chas. W. Spurr, Jr., exclusive agent for Brooklyn and Long Island for Crestmobile. Price \$600. Call and take a ride.

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SPEED—5 m.; on Main Street, south of Chip-pewa, 5 m.; rounding corners and at street and alley intersections, 5 m. HORNS or GONGS—Not required. LIGHTS—Required all hours after nightfall. REGISTRATION, etc.—State law applies.

873-875 MAIN ST. Phone 468 Tupper The W. C. Jaynes Automobile Co. Storage, Charging and Repairing Station. Complete line of Automobile Sundries. Agent for Oldsmobile, Winton, National Electric and Buffalo Electric Vehicle Co.

NEW YORK CITY

SPEED, LAMPS, BELLS, LICENSE—See state laws. FERRIES—Will carry any class of vehicle with tanks filled if engine is stopped and fire extinguished; toll, same as for teams. BRIDGE TOLL—Same as for teams.

37th STREET, 515 7th AVE. Tels. 6495&6496 - 38th Smith & Mabley, Importers of Panhards, C. G. V., Renault Automobiles, Parts and Supplies. The American C. G. V. Gasoline Cars. Storage and Charging Station. Open Day and Night. Specially Equipped for Repair of Foreign Cars.

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51st STREET, 143 WEST. Phone 1601 Columbus Knickerbocker Automobile Station, S. O. Minter, Mgr. Storage, Charging, Repairing and Supplies.

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SYRACUSE

SPEED, ETC.—See state law. No local legislation.

348-348 SO. WARREN ST. Phone 955 New Syracuse Automobile Co. (Incorporated), Agents for Locomobile, Oldsmobile, Waverley, Storage, Repairs, Gasoline and Lubricants. Special Attention to Tourists.

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ONEIDA SQUARE. Phone 884-A Miller-Mundy Motor Carriage Co., Agents for White Steamer, Pierce Motorettes, Waverley Electrics. Storing, Repairing, Charging, Gasoline. Special attention to Tourists.

OHIO

CLEVELAND

SPEED—Within $\frac{1}{4}$ -mile from east and west ends of Superior Street viaduct, 7 m.; outside such radius, 15 m. Must stop upon signal from horse driver. LICENSE—Required; fee, \$1. NUMBERS—Registered numbers must be attached at rear and kept clean. LAMPS—One on each side must be kept lighted during darkness. BELL or HORN—Required, and must be sounded when there is danger of accident. PENALTY—For violation of any section, fine not exceeding \$50.

COLUMBUS

SPEED—On of business streets, 14 m.; on business streets, 8 m. PENALTY—Fine from \$5 to \$50 or 30 days' imprisonment. BELLS or HORNS—One or other required, to be sounded when necessary. LAMPS—Required after dark. PENALTY—Fine not exceeding \$50.

TOLEDO

SPEED—Inside city limits, 16 m.

CINCINNATI

SPEED—In streets and parks, 8 m. HORNS or GONGS—Must be sounded 100 ft. before street crossings. LAMPS—Must be lighted between sunset and sunrise. BRAKES—Efficient brakes required. LICENSE—None required. INITIALS—None required. TOLLS—Bridge toll, 10 cents. SPECIAL—Two vehicles must not travel abreast.

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The Special Motor Vehicle Co. Agents for Fournier-Searchmont and Spaulding Lines. Rebuilding and Repairing Motor Vehicles.

807-809 RACE STREET. Phone Main 2329

The Cincinnati Automobile Co. Agents for Toledo and Rambler Lines.

PENNSYLVANIA

PHILADELPHIA

SPEED—Inside city limits, 7 m. Parks, same. BELLS or GONGS—To be sounded only at crossings. LAMPS—Required. PARKS—State law limits speed to 7 m. LICENSE—Required in parks; fee, 25 cents. NUMBERS—Must be attached at rear of vehicle in parks. TOLLS—No bridge tolls, but main roads have toll gates each 2 or 3 m.; charge same as for 2-horse team. FERRY—Charge same as for 2-horse team.

246-248 N. BROAD. Phone 1-48-44

Winton Motor Carriage Co. A. E. Maltby, Mgr. Storing, Repairing, Supplies—Winton Cars only.

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SPEED—In city streets, 12 m.

5909 CENTER AVE. Phone 1664 East

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YORK

SPEED—In city limits, 8 m. LAMPS—Must display one or more lights.

REAR 14 NORTH GEORGE ST. Phone 42251

J. P. Oden. Automobile Exchange. Storing and Charging. First Class Repairing Only.

COR. MARKET & BEAVER. Express Bldg. York Phone J. H. Snyder, Storage, Repairing, and Supplies. Agent for Oldsmobile.

RHODE ISLAND

SPEED—Outside compact parts of cities and towns, 10 m.; inside, 8 m.; reduce at crossings. INITIALS—Resident owners must display initials in block letters 2 ins. high. BELLS and HORNS—One or other required, but must not be used excessively. MUFFLER—Required at all times on public highway. PENALTY—Fine of \$10 or 10 days' imprisonment for first offense; doubled for subsequent violations.

PROVIDENCE

SPEED—In city, 10 m. LAMPS—Three required.

OPPOSITE UNION STATION. Telephone 1058

H. G. Martin & Co., Agent Winton, Locomobile, Elec. Veh. Co. Storing, Charging, Repairing, All Supplies. Always Open.

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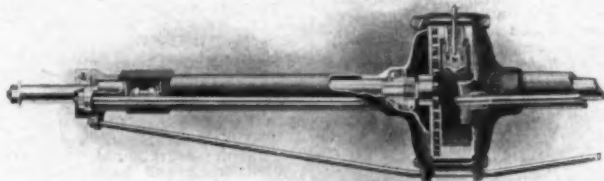
501 BROADWAY. Phone Black 8072 Bates-Odenbrett Automobile Co. Storage, Repairing and Supplies.

BUSINESS NOTES.

Centaur Rear Axle.

In the design and construction of this axle no attempt has been made to gain a reduction in weight by a sacrifice of the essential factor of safety and efficiency of its running qualities. The great strength of this axle insures absolutely perfect alignment of the bearings. For

position. High duty steel balls, 5-8-in., running in steel, ground, ball races are used and a simple and effective adjusting device is provided. Axles are furnished with or without truss rods, with or without compensating or equalizing gears, and with or without brakes. The gear case is divided in halves with an interlockin:

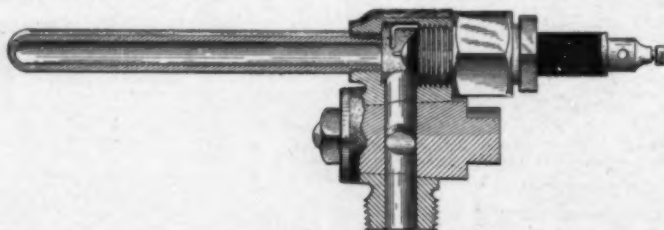


vehicles up to 1,200 lbs. in weight it is sufficiently strong without the truss rods, but for road vehicles of a greater weight up to 2,000 lbs. the truss rods are necessary. The axles are machined from 17-16-in. solid stock, key-seated for 11-4-in. hubs. The outer shell is made from 21-2-in. O. D. No. 8 gauge Shelby seamless tubing, the gear case and cup receptacles being brazed to the same, machined and ground in

fit held in position by finished cap bolts. The spring seats, to which studs are cast integral to receive distance rods or struts, can be located to accord with any distance of spring centers desired. The standard axle is direct center chain line, but when ordered in reasonable quantities can be furnished suitable for any desired chain line. The axle is manufactured by the Centaur Motor Vehicle Co., Buffalo, N. Y.

Cotton Duplex Ignition.

The cotton duplex igniter, illustrated herewith, consists of a Y-shaped casting provided with a pair of spark plug receptacles; a three-way valve and a nipple. A compression tube enters each plug receptacle. In the application of this de-



vice the nipple is screwed into any passage leading to the compression chamber of the engine cylinder. The nipple is made to fit 1-2-in. pipe or smaller to order. On engines fitted with hot tube ignition it is convenient to screw out the tube and insert the igniter in its place. In operation the gas is compressed through the nipple to one of the plugs when it is ignited at the desired period; the expansion cycle of the engine then taking place. On the return or cycle of ex-

haustion the gases in the igniter are exhausted to substantially that of the engine or near atmospheric pressure. A certain quantity of dead gas that remains is forced into the compression tube on the next compression cycle to such an extent that the combustible gas passes through

and fills the plug receptacle with surety of ignition under variable compression. The troubles usually caused by deposits of carbon or other electrical conducting material on the insulation of the plug are eliminated through gaseous friction, the insulation and electrodes being always in a polished condition. The cotton duplex igniter is manufactured and exclusively for sale by the Automobile Equipment Co., of 21 Quincy Street, Chicago.

MOTOR TIRES.—The International A. & V. Tire Co., of Milltown, N. J., has issued a little booklet illustrating and describing its Fox brand pneumatic motor and Endurance motor tires, and its Endurance and solid rubber and cushion vehicle tires. The company is also sending out an 8-page folder of testimonial letters from prominent motor vehicle companies telling of the work that has been done by these tires and of the satisfaction they have given.

FIRE EXTINGUISHER.—The Manville fire extinguisher, manufactured by the H. W. Johns-Manville Co., of New York and Milwaukee, is described in a booklet issued by that company. This is a chemical extinguisher in the form of a long tube filled with a dry powder that is warranted not to freeze, cake or deteriorate through the effects of dampness or age. When sprinkled at the base of the flames the powder releases a carbon dioxide and produces an extinguishing effect on flames that will not be affected by water, such as burning oils, acetylene gas, etc. For this reason the extinguisher is desirable as a part of the equipment of the automobile station and stable and is suitable for carriage on steam and gasoline vehicles themselves. The

booklet reprints from the Milwaukee Evening Wisconsin an account of a public trial of the Manville extinguisher in the presence of Chief Foley, of the city fire department; also a number of testimonial letters regarding the efficiency of the extinguisher and a partial list of large establishments that have been equipped with them.

NELSON AUTO. PUMP.—A valveless steam feed-water pump to be operated in connection with regulators is manufactured and sold by F. W. Ofeldt & Sons, foot of 25th Street, Brooklyn, N. Y. The Nelson pump is remarkably simple, there being actually but two working parts, no valves in either water or steam cylinders, and no stuffing boxes, a ground sleeve in each distance piece being used to separate the two cylinders. The pump is held together by one bolt that passes through the two pairs of twin cylinders and has at each end a bridge piece that holds the cylinder heads in place. The makers state that the pump requires no attention and no lubricator and will work in connection with any automatic regulator, either of the expansion rod or float type, and that it can be controlled directly by the operator at will.

Folding Automobile Bucket

A folding rubber water bucket, for use in filling the tanks of steam vehicles, is manufactured by C. S. Knowles, 7 Arch St., Boston, Mass. Folded, as shown in the accompanying illus-



tration, this bucket can be placed under the seat cushion. It is fitted with a strainer and snout, so that the tank can be filled from brook or water trough without trouble.

DIXON PAINT CARD.—A card device for displaying the colors of Dixon's Silica-Graphite paint in such manner as will permit of an exact idea of each color, is being issued by the Joseph Dixon Crucible Co., of Jersey City, N. J. The color chart carries with it suggestions as to the class of construction that can be protected with this paint.

CANNON'S COMMENDATION.—The Steam Carriage Boiler Co., of Oswego, N. Y., is in receipt of a letter from George C. Cannon, builder of the Cannon steam racing machine, in which he expresses his entire satisfaction with the 24-inch fire-tube boiler made by the company and which is fitted to his machine. During his exhibition mile in 1:07 3-5 at Brighton Beach, on August 23, Cannon says he was able to make steam, while, at the same time, figuring air resistance and weight of car (over 1,100 lbs.), over 14 h.p. must have been used. Since then the same machine has made a mile on the Narragansett Park track in 1:05 1-4.

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NO AUTO

is as handsome, as saleable and as satisfactory without a

McKINNON DASH

as it would be with it.

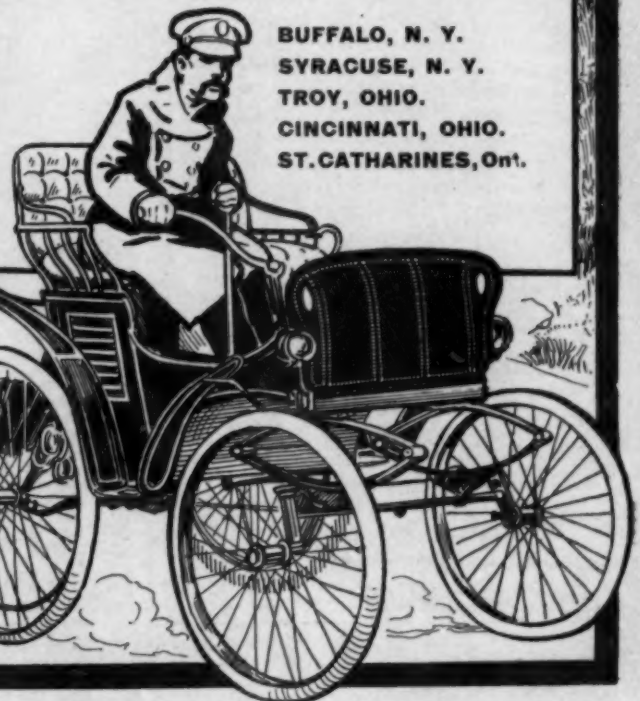
Rattling, tinny, cracking, peeling metal dashes never were satisfactory as carriage dashes, and they never are and never will be satisfactory as automobile dashes.

And, at the same time, while a dash is one of the most inexpensive parts of an auto it is easily the most conspicuous, not only to the owner of the auto, but everyone else.

Might as well use the best while you are about it—and that means use McKinnon dashes.

McKinnon Dash Co.

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SYRACUSE, N. Y.
TROY, OHIO.
CINCINNATI, OHIO.
ST. CATHARINES, Ont.



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Advertisements of second hand vehicles or parts for sale, or for Positions Wanted, inserted under this heading at 10c per line of about six words. Remittance must accompany copy.

FOR SALE—One Packard style metallic body, new. Address W. S. Dunning, Alexander Iron Works, Syracuse, N. Y. tf

FOR SALE—Knox three wheeler, slightly used and in excellent running order, \$450. A big sacrifice. Apply J. Mehlig, N. O. La. 25

FOR SALE—Locomobile, almost new, with top. All in excellent condition and at a bargain if taken at once. Reason for selling, can not afford two machines. Address "X," care Automobile and Motor Review, 395 Broadway, New York City. 18

FOR SALE—1902 Rambler for \$625.00. Bought June 14th. This machine has two new tires, the other two have never been punctured, also has Dyke Carburetor, brass fenders, three gas lamps and is in best of condition. Owner going to buy a touring car. Oscar Carman, 618 E. 22d St. Indianapolis, Ind. 18

FOR SALE—One Locomobile with steam air pump, in good condition, \$250. One Locomobile in good condition, just painted, \$225. One Locomobile, style 0. 2, nearly new, with steam air pump, \$475. Two Mobile Dos-a-dos, both in first-class condition, \$550 each. One Waverley Electric, \$450. One Waverley Electric, \$250. One De Dion Bouton Motorette, \$450. One De Dion Quadricycle, \$275. One Oldsmobile with top and a Dos-a-dos seat, \$500. One Oldsmobile with Dos-a-dos seat, \$475. One Standard Oldsmobile, \$450. One Oldsmobile, fitted with emergency brake, new style; switch, new tires, and just painted, \$550. F. W. Stockbridge, 450 Broadway, Paterson, N. J. tf

WANTED—A second-hand gasoline runabout, 4 to 6 h.-p. Address P. O. Box 413, Tucson, Arizona. 27

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WANTED—July and October, 1900, numbers of the Automobile. If you have them write us and we will pay 20 cents each for the first copies offered. The Class Journal Co., 395 Broadway, N. Y.

WANTED TO EXCHANGE—One of my standard size Steam Calliopes for a durable and powerful automobile. I desire same for advertising purposes. Address giving full particulars, George Kratz, Calliope Builder, Evansville, Ind. 25

FOR SALE—U. S. Long Distance Automobile, 1902 model; been run less than 2,000 miles. In Perfect Condition. Price \$900; reason for selling, wish to get a touring car. George C. Worthington, Elyria, Ohio. 18

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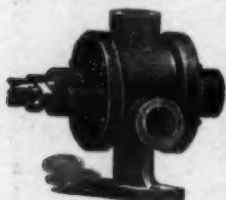
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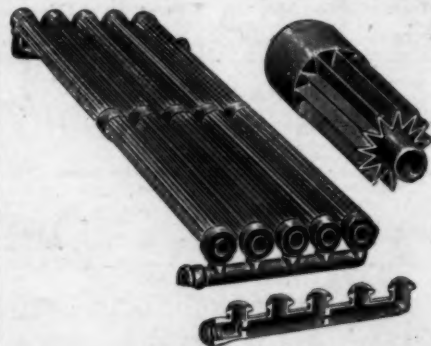
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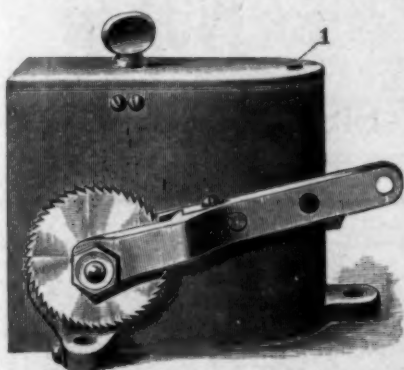
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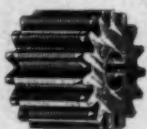
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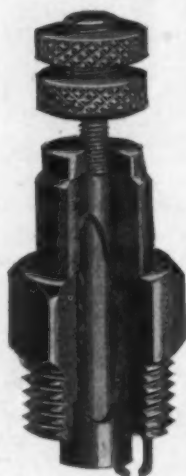
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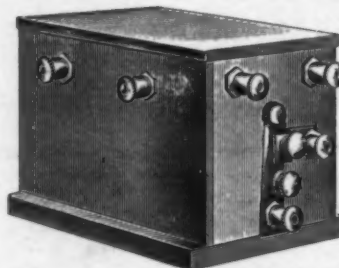
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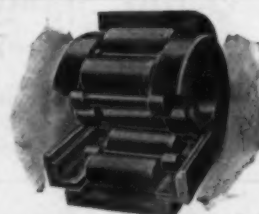
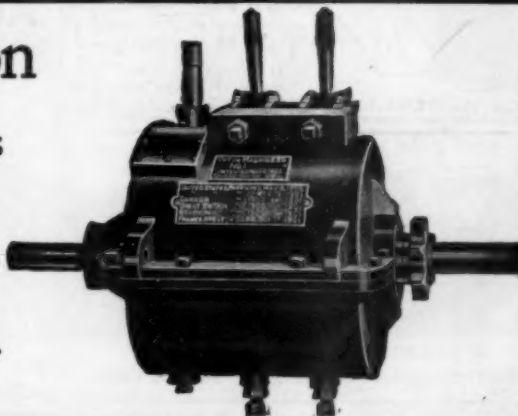
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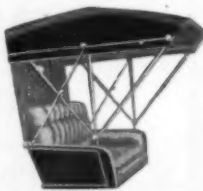
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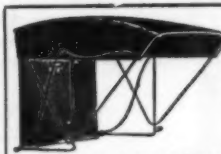
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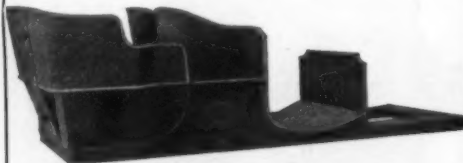
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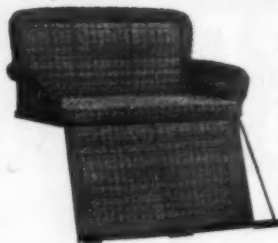


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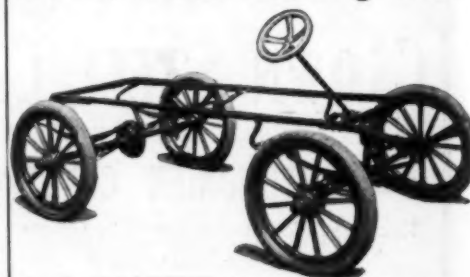
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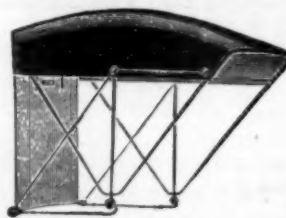
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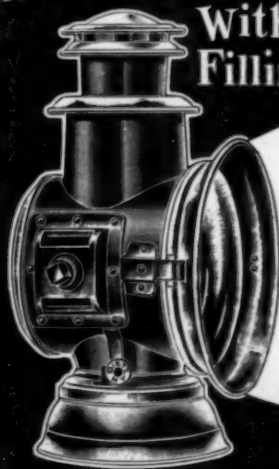
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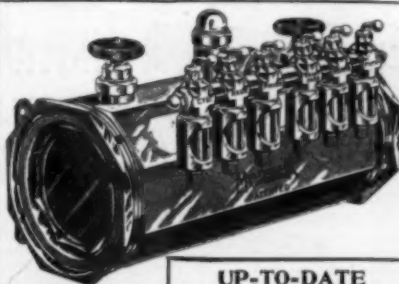
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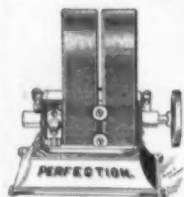
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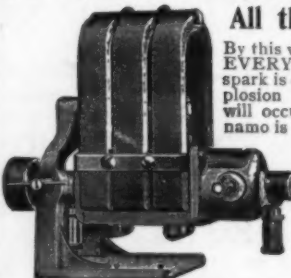


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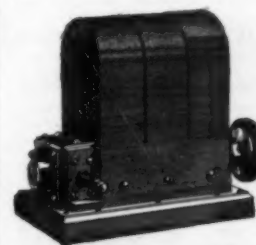
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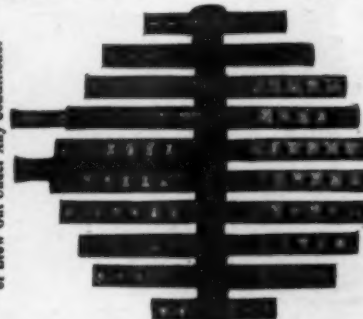


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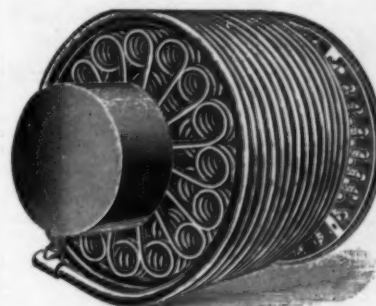
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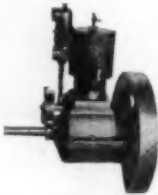
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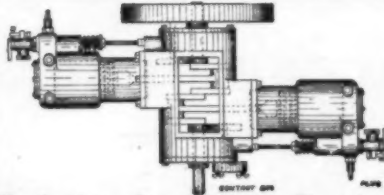
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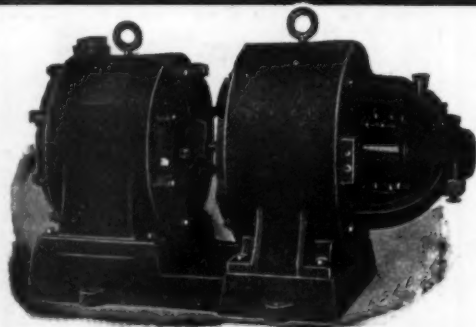
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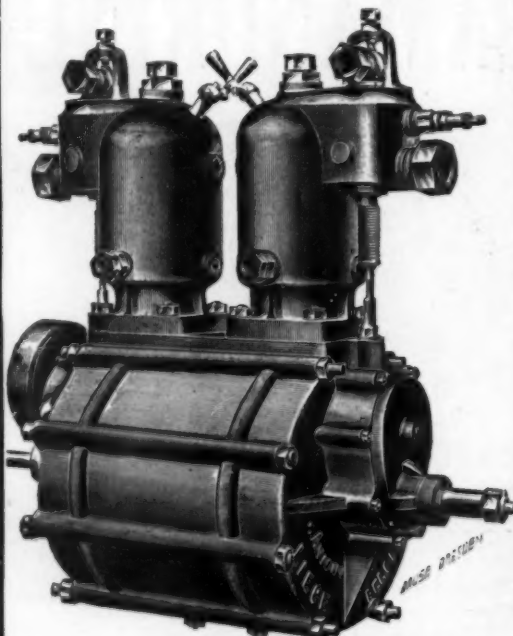
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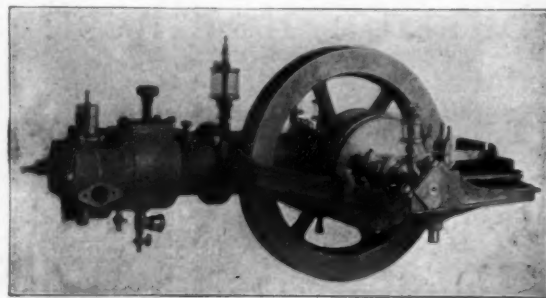
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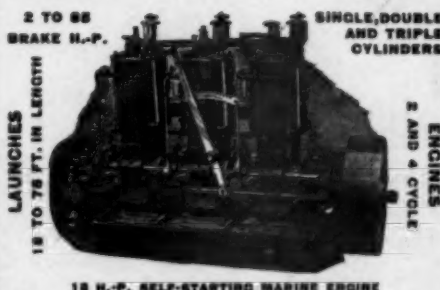
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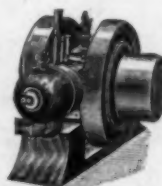
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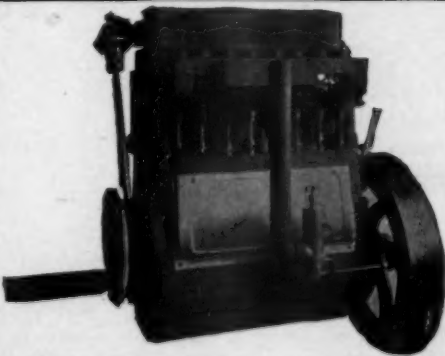


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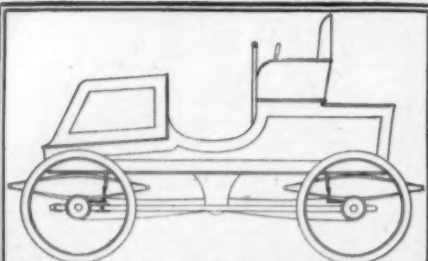
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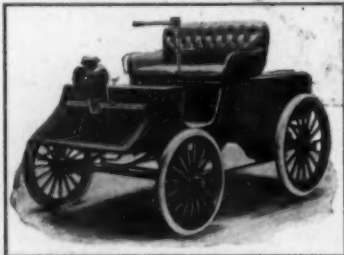
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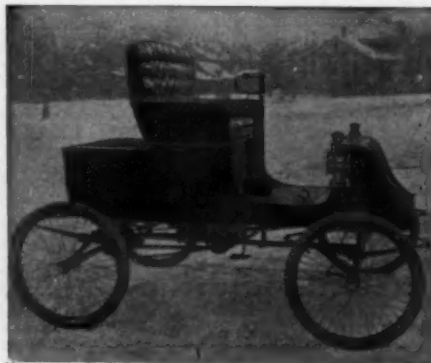
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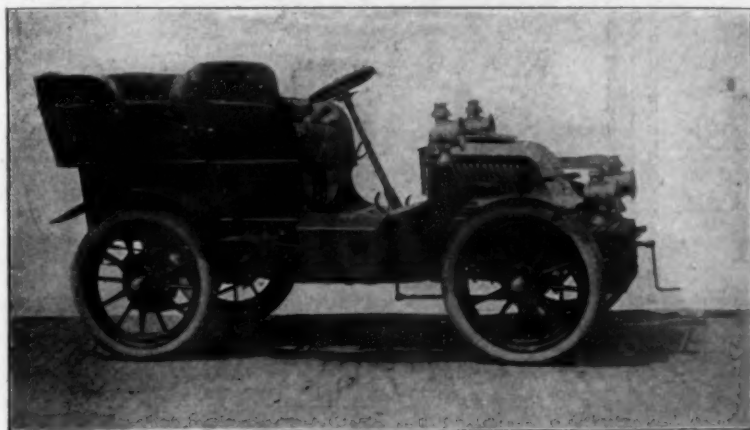
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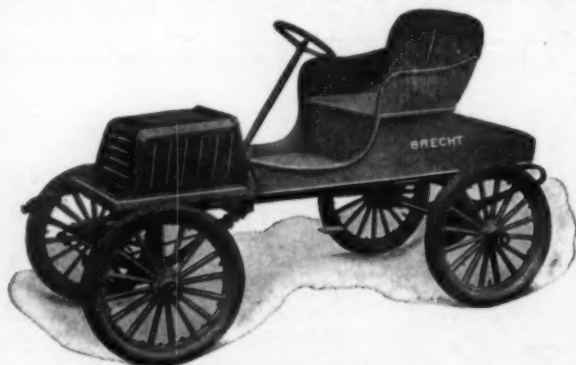
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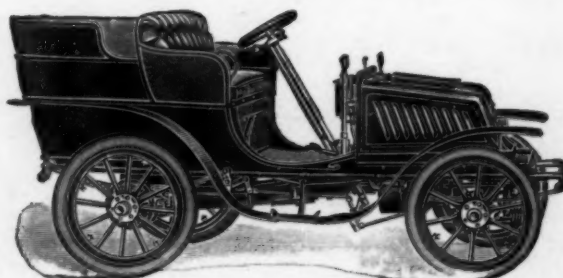
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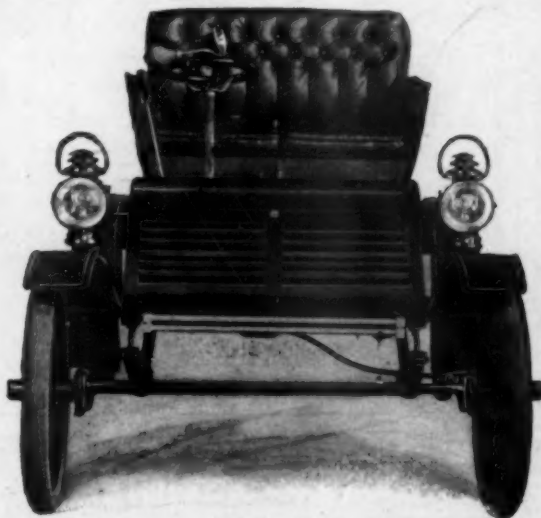
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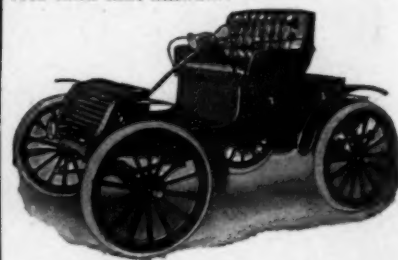
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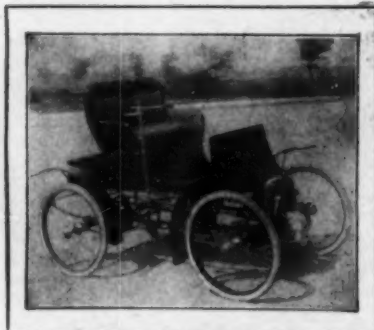
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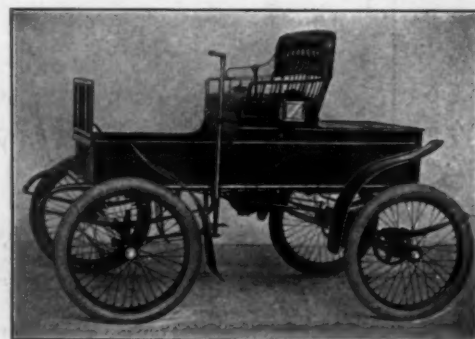
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